



Plastic card solutions for a changing world

**User's Guide for
ImageCard® and
UltraGrafix® Series Printers**

Express and Select Classes

January 1999

Part No. 526945-001

Please note and heed the WARNING and CAUTION labels that have been placed on the equipment for your safety. Please do not attempt to operate or repair this equipment without adequate training.

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Revision Log

User's Guide for ImageCard and UltraGrafix Series Printers (Express and Select Classes)

Revision	Date	Affected Pages	Description of Changes
A	Jan. '99	All	First version of this manual.

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Declaration of conformity

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DATACARD CORPORATION
Declaration of Conformity

Manufacturer's Name: DataCard Corporation

Manufacturer's Address: 11111 Bren Road West
Minnetonka, MN 55343
USA

declares, that the product:

Product Name: Plastic Card Printer

Model Number(s): ImageCard Express or ICE with suffixes
ImageCard Select or ICS with suffixes
UltraGrafix Express or UGE with suffixes
UltraGrafix Select or UGS with suffixes

conforms to the following Standards:

Safety: EN 60950:1991 + A1, A2, A3

EMC: EN55022:1994 + A1 and A2
EN50082 – 1: 1992
IEC 801-2, 801-3, 801-4

Supplementary Information:

“The product complies with the requirements of the **Low Voltage Directive 73/23/EEC** and the **EMC Directive 89/336/EEC**.”

David Pierson
Director of Engineering
Enterprise Company
DataCard Corp.

_____ Date _____

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Chapter 1: Introduction

1

This chapter contains introductory information on this manual and on the ImageCard® and UltraGrafix® series photo ID printers.

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About this manual

This manual describes the ImageCard/UltraGrafix print series. It contains procedures for basic operation of the printer, performing routine maintenance on it and troubleshooting problems.

Required skills

To perform the procedures in this manual, you must have the following skills:

- Ability to read and understand written and graphical instructions
- Ability to operate a personal computer
- Experience with Microsoft Windows®
- Ability to load supplies
- Ability to perform simple troubleshooting using written and graphical instructions

The printer and its features

The ImageCard/UltraGrafix printer is a low-cost desktop printer that delivers high-quality, full-color IDs including photos, text, logos, bar codes, digitized signatures, encoded magnetic stripes, and personalized *smart card* data storage chips. It requires the use of the ImageCard/UltraGrafix printer driver on a PC running Microsoft Windows 95, Windows 98 or Windows NT. For optimal performance, an enhanced communications port (ECP) parallel port is recommended for fast data transfer from the PC. The printer also requires the use of a card printing application, such as QuikWorks™, to capture and organize information into a card format.

This printer is part of a series of DataCard printing products. Various models have different names, depending on what optional features they contain. (There are also price differences between models.) These are the available features and options in the product line:

- *Color or monochrome printing* — Printers in the ImageCard series can print a full range of colors using three-color ribbon. Printers in the UltraGrafix series do *monochrome* printing with 1-color ribbon.

- *Magnetic stripe encoding* — This option offers the ability to record information on a card's magnetic stripe. This is available as an option on any ImageCard or UltraGrafix model.
- *Smart card encoding* — ImageCard and UltraGrafix printers can record information on *smart cards*, which are plastic cards containing computer chips. This is available as an option on most ImageCard or UltraGrafix models.
- *Enhanced printing speed* — Some printers print at higher speeds for applications that require fast card printing.
- *Automatic dual-sided printing* — All ImageCard and UltraGrafix machines allow *duplex printing*, or printing on both sides of a card. On some models, the printer automatically turns the card over to print the other side. With other models, the operator turns the card over by hand.

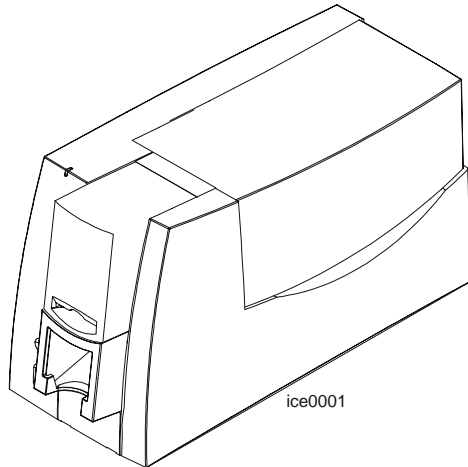
i An existing ImageCard or UltraGrafix printer cannot have a different set of options added.

Use Table 1:-1 and your printer's product name (which appears on the box or the front of the printer) to learn what features are included in your machine:

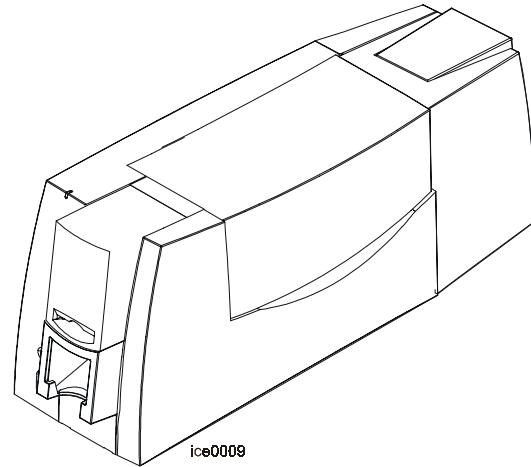
Table 1:-1 Features available with various printer models

Model name	Magnetic stripe (MS) available?	Smart card (SC) available?	MS & SC in same printer?	Colors printed	Printing speed	Duplex print method
ImageCard Express	Yes (optional)	Yes (optional)	No	Full color or mono.	Standard	Manual
ImageCard S	Yes (optional)	No	No	Full color or mono.	Enhanced	Manual
ImageCard S2	Yes (optional)	Yes (optional)	Yes	Full color or mono.	Enhanced	Auto
UltraGrafix Express	Yes (optional)	Yes (optional)	No	Mono. only	Standard	Manual
UltraGrafix S	Yes (optional)	No	No	Mono. only	Enhanced	Manual
UltraGrafix S2	Yes (optional)	Yes (optional)	Yes	Mono. only	Enhanced	Auto

Figure 1:-1 shows what the different versions of the printer look like: Express and S models for both the ImageCard and UltraGrafix lines, and the S2 model for both lines.



Express and S models



S2 models

Figure 1:-1 ImageCard/UltraGrafix printer models

i The S and S2 models are both part of the *Select class*.

Parts of the printer

This section describes the basic components of the printer.

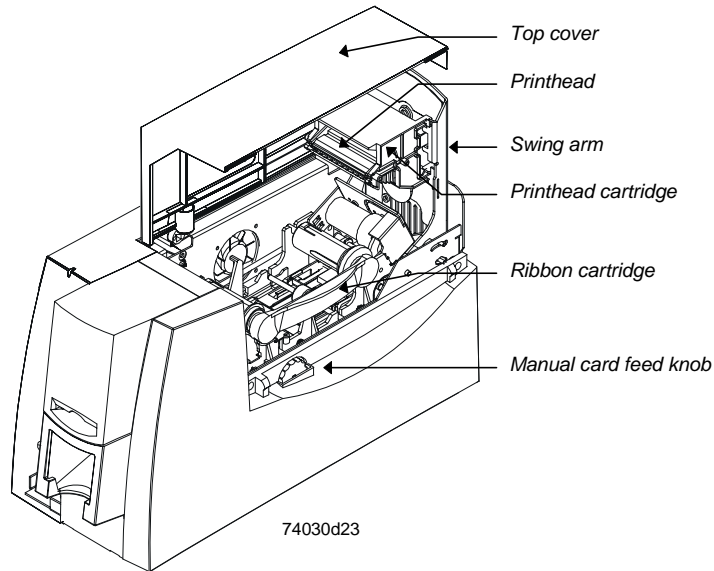


Figure 1: 2 Printer internal part names (Express and S models shown)

Top cover – The top cover protects the internal parts of the printer from dust and debris.

Printhead – The printhead, contained in the *printhead cartridge*, uses heat and pressure to transfer dye and other material from the ribbon to the card.

Swing arm – The swing arm opens to give you access to the printhead cartridge and ribbon cartridge.

Printhead cartridge – The printhead cartridge holds the printhead.

Ribbon cartridge – The ribbon cartridge holds the ribbon.

Manual card feed knob – The manual card feed knob turns the rollers so you can move jammed cards along the card transport track manually.

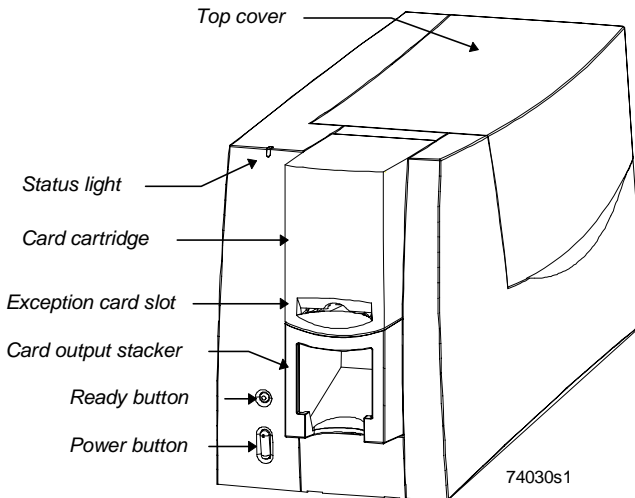


Figure 1:-3 Printer front part names (Express and S models shown)

Status light – The status light indicates that the printer is processing data, ready to receive data, or in an error condition.

- When the status light is green, the printer is on.
- When the status light blinks green, the printer is paused, or it is printing or receiving data from the PC.
- When the status light blinks yellow, an error has occurred.
- The status light can turn red on rare occasions. If this happens, contact your DataCard-authorized service provider for assistance.

Card cartridge – The card cartridge holds blank cards to print.

Exception card slot – The exception card slot allows you to insert a single card that is different from the cards in the card cartridge. For example, use the exception card slot when you use the printer to *manually* print on both sides of a card. The printer prints one side, and then ejects the card. To print the other side, you can remove this card, flip it over, and insert it into the exception card slot. (Note: Some printer models can perform this card flip automatically. See *The printer and its features* on page 1-2 for more information.)

Card output stacker – The card output stacker holds the cards after they have been printed.

Ready button – The Ready button allows you to pause the printer while printing a card, to cancel a print job and delete all data for the job, or to create a *printer test card*:

- To pause the printer, press and hold the Ready button for three seconds or less. The status light continues to blink green while the printer is paused. Press the Ready button again to resume printing.
- To halt the current print job, first press the Ready button to pause the printer. When you hear an audible sound, press and hold the Ready button for between three and ten seconds. When the sound changes tone, release the Ready button.
- You can verify that the printer is working correctly by making a *printer test card*. See *Printing test cards* in Chapter 2 for more information.

Power button – The power button allows you to power on or power off the printer.

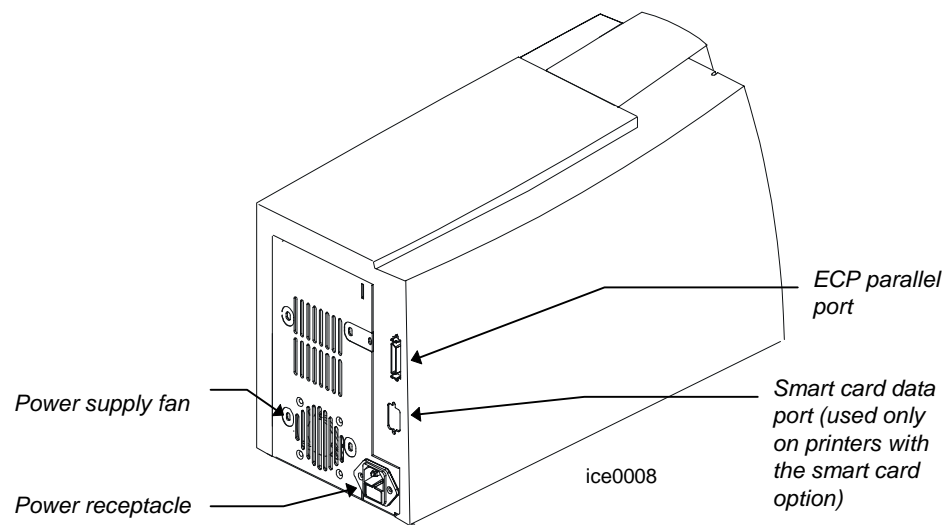


Figure 1:-4 Printer back part names (Express and S models)

ECP parallel port – The ECP parallel port is the port for connecting the printer's interface cable to the PC.

Power receptacle – This is the receptacle for connecting the power cable.

Power supply fan – The power supply fan cools the power supply components in the printer.

Smart card data port — On printers equipped with the smart card option, this connector is for the cable from the PC that carries the data to encode on the smart card chip.

Duplex module — On ImageCard S2 and UltraGrafix S2 printers, the duplex module contains the hardware for automatic dual-sided printing (see Figure 1:-5). This module is not present in the Express or S printers.

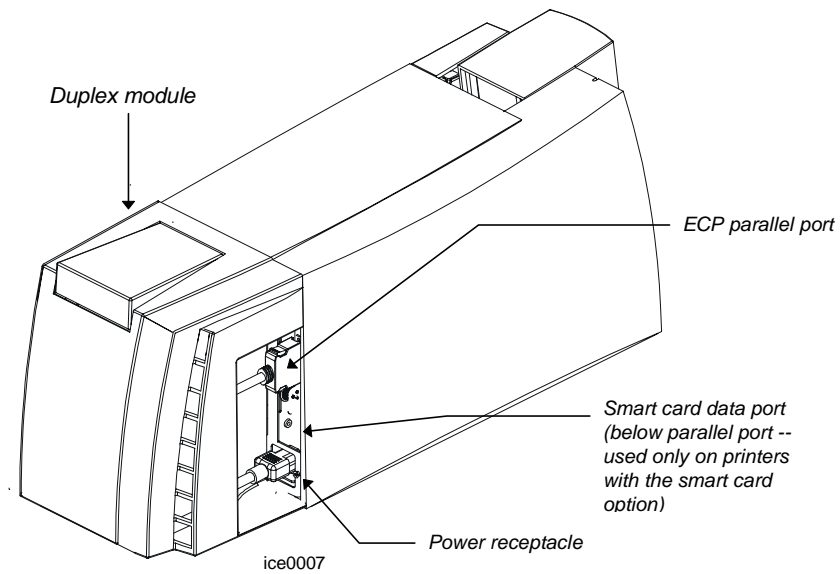


Figure 1:-5 Printer back part names (S2 models)

Printer software requirements

The printer must be connected to a PC that provides data to print on a card. The operator creates the card design on the PC, and the PC sends the information to the printer. The PC must have the following software:

- Microsoft Windows 95, Windows 98 or Windows NT 4.0, Service Pack 3 or higher (not supplied with the printer). With NT 4.0, the printer driver is not supported for PCs with Alpha, MIPS, or PowerPC processors.
- A Microsoft Windows card printing application, such as DataCard's QuikWorks products (not supplied with the printer)
- **i** The card printing application is responsible for creating the card format and correctly preparing data (including magnetic stripe and smart card data) for printing.
- The ImageCard/UltraGrafix photo ID printer driver. Two versions come with the printer — one for Windows 95/98 and another for Windows NT.

The printer driver runs on the Microsoft Windows platform. It requires the following PC hardware configuration for optimal performance:

- RAM: 16 MB or more recommended for *Windows 95/98*; 32 MB or more recommended for *Windows NT*
- Connection: An *ECP* parallel port. *ECP* stands for *extended capabilities port*. This type of port allows two-way (bi-directional) communication between the PC and the printer. ECP ports are also capable of much faster data transfer, depending on the communication method being used.

For hardware requirements of your card printing application, see the documentation that came with the application.

Card quality guidelines

Your cards must meet the following card quality guidelines for the printer to successfully print high quality graphics on them.

Card surface

Card stock must meet the following surface guidelines.

- The card surface must be smooth and free of irregularities (such as bumps and scratches) so that the printhead and ribbons can maintain contact with the print surface. Surface irregularities can cause loss of contact, resulting in printing voids or damage to the printhead.
- The printing surface must be glossy. It cannot have a matte finish (see *Card requirements* in Appendix B for more information).

Card handling

These guidelines apply to unprinted cards. Any debris or particles on an unprinted card's surface can reduce printing quality and damage the printhead. Grease or oils, such as oils from your fingers, also reduce printing quality.

- Keep cards in their box until ready for use.
- Keep cards completely clean.
- Do not touch the printing surface of a card with your fingers or hands.
- Do not use a rubber band to bind blank cards together.
- If you drop a card on the floor, do not insert it into the printer.

Card storage and maintenance

These guidelines apply to both printed and unprinted cards.

- Cards must be stacked so that they will not shift and rub against each other.
- When storing cards, make sure that no two cards contain images or blocks of color that will come in contact with each other.

- Make sure that the magnetic stripe on one card does not come into contact with the magnetic stripe on another card.
- Make sure that cards with magnetic stripes are stored away from magnets and other magnetic objects.

Supplies

See Appendix B for information on the supplies to use with the printer.

Chapter 2: Getting started

2

This chapter contains information on installing the printer driver for the ImageCard or UltraGrafix photo ID printer, loading initial supplies, setting up the magnetic stripe encoding (on printers with the magnetic stripe option), and printing test cards.

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Choosing a site

When choosing a location for the printer, consider the following environmental and electrical requirements.

Environmental requirements and specifications

The printer requires the following environmental conditions for optimal performance:

- Operating relative humidity: 20% to 80% non-condensing
- Storage relative humidity: 20% to 80% non-condensing
- Operating temperature range: 55° F to 80° F (13° C to 27° C)
- Storage temperature range: 0° F to 100° F (-18° C to 38° C)
- Physical space requirements:
 - *Width*: 17.75 inches (450.85 mm) for Express and S models, 24 inches (650.16 mm) for S2 models
 - *Depth*: 8.75 inches (222.25 mm)
 - *Height*: 10 inches (254 mm)
 - *Weight*: 21.4 lbs. (9.71 kg) for Express and S models, 26.25 lbs. (11.9 kg) for S2 models

Electrical requirements

The printer requires the following electrical conditions for optimal performance:

- A dedicated outlet
- 90-254 VAC 50/60 Hz (the printer will adjust to any power within this range)
- Single phase, 3-wire grounded receptacle only

The machine's maximum input current is 1.4 amps at 100 VAC applied.

General requirements and intended use

Consider the following general printer installation guidelines:

- Keep all dust, dirt, food, liquids, etc. away from the printer at all times.
- Keep the top cover closed at all times, except when changing supplies.
- Store all supplies (ribbons, cards, etc.) in their original packaging until it is time to load them.
- Do not use contaminated supplies.
- Store all supplies in a clean, cool, dry location.
- Keep paper and foreign materials off the printer.
- Do not block the air vents or power supply fan on the back of the printer.
- Place the printer on a stable platform; keep it off the floor.
- Place the printer away from air vents (heat ducts, blowers, etc.).
- Do not use the printer for purposes other than its intended use.
- When cleaning around the printer, cover it to prevent debris from entering the printer.
- Place the printer in a clean office environment, protected from any type of construction.

Connecting cables

Once you have chosen a location for the printer, you will need to connect various cables to it. Figure 2:-1 shows the locations of the printer's cable connectors for different printer models.

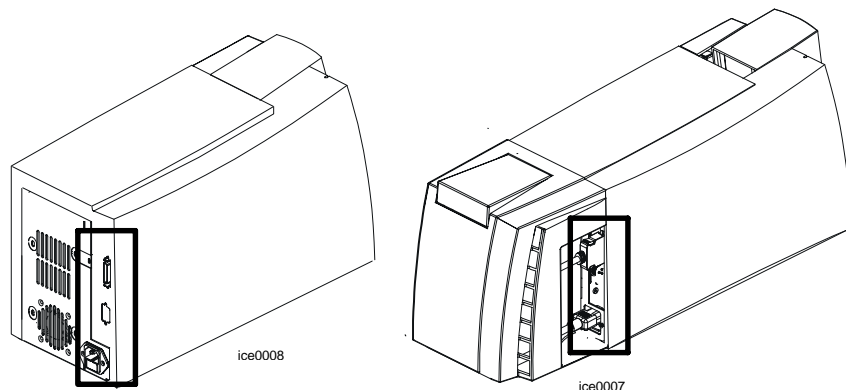


Figure 2:-1 General locations of cable connectors

Make the following cable connections (see Figure 2:-2 if your printer does not have the smart card option, or Figure 2:-3 if it does):

- The power cable connects the printer to a power outlet.
- The interface cable connects the printer's ECP parallel port to the PC's parallel port.
- *On machines with the smart card option only:* The smart card cable connects the PC to the printer's smart card data port.

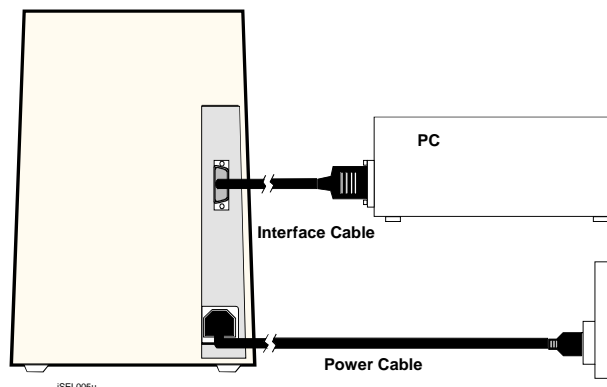


Figure 2:-2 Connections for printers *without* the smart card option

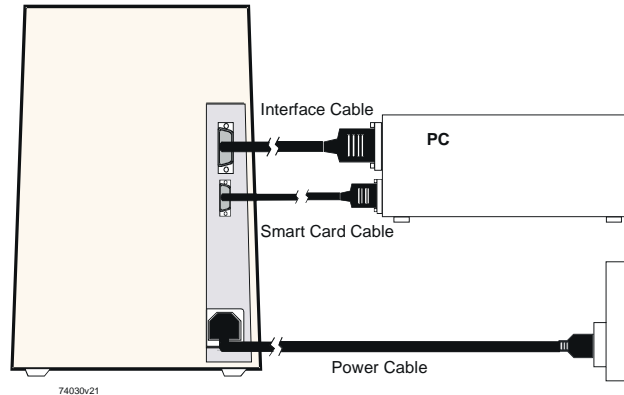


Figure 2:-3 Connections for printers *with* the smart card option

Loading supplies

These are the printer supplies you will need to replace most often:

- Blank cards
- Ribbon

i You can also replace the printhead cartridge. See *Replacing the printhead cartridge* in Chapter 5 for instructions.

Loading blank cards

The printer has a translucent card cartridge so that you can easily see how many cards are loaded. When it is empty, reload it. To order additional cards, contact your DataCard-authorized service provider or your card vendor. For information on card requirements, see Appendix B.

Load blank cards

1. Lift the card cartridge up and out of the card cartridge cavity (see Figure 2:-4).
2. Place blank cards into the card cartridge. Do not touch the surface of the cards.

For magnetic stripe cards, the magnetic stripe must be facing down and positioned toward the right side of the printer (see Figure 2:-5).

2-6 Getting started

3. Replace the card cartridge into the card cartridge cavity, setting the top in place and pushing the bottom toward the printer until it clicks into place (see Figure 2:-6).

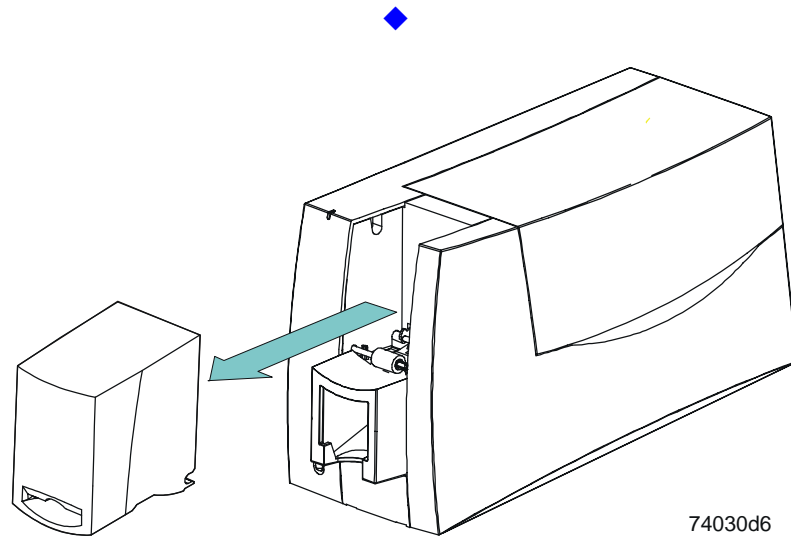


Figure 2:-4 Remove the card cartridge (Express and S models shown)

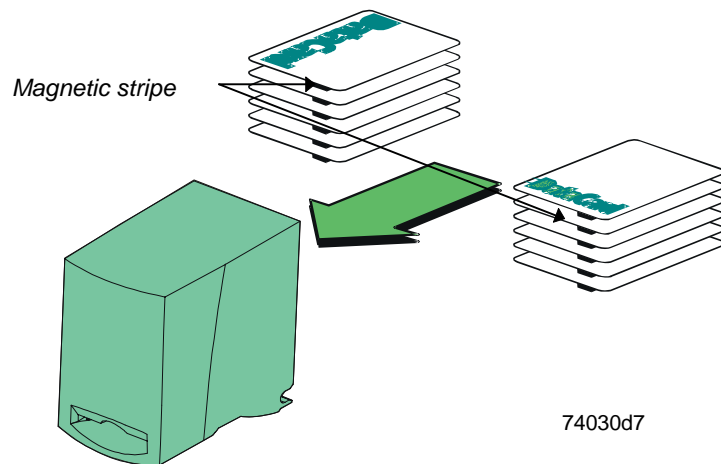


Figure 2:-5 Load cards into the card cartridge

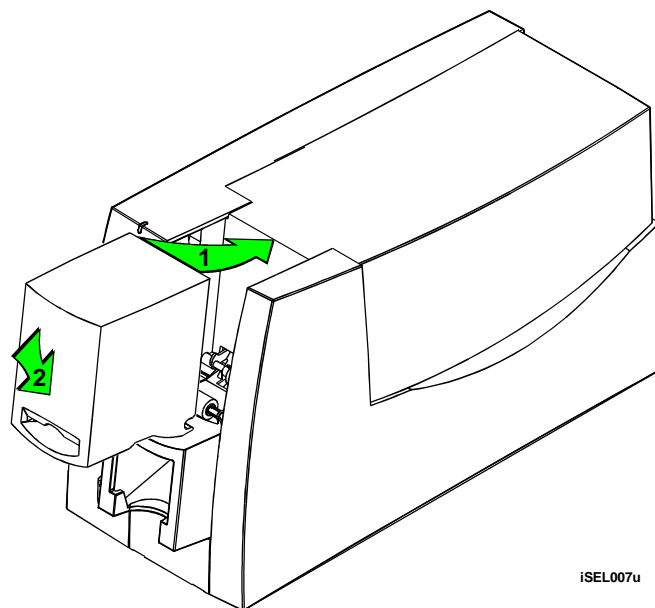


Figure 2:-6 Replace the card cartridge (Express and S models shown)

Loading and replacing the ribbon

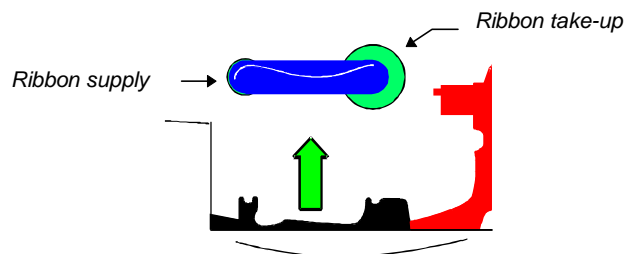
The printer uses ribbon with color panels or continuous color. To order new ribbon, contact your DataCard-authorized service provider. See Appendix B for ordering information.

Replace ribbon

1. Lift open the top cover.
2. Press down on the swing arm. The push latch releases the swing arm. Lift the swing arm until it is fully open.
3. Grasp the ribbon cartridge handle, and lift up to remove the ribbon cartridge (see Figure 2:-7).
4. Remove the used ribbon and used ribbon core from the ribbon cartridge shafts.
5. Slide the new supply ribbon and ribbon core onto the left ribbon cartridge shaft (see Figure 2:-8).
6. Slide the new take-up ribbon core onto the right ribbon cartridge shaft, leaving very little slack in the ribbon between the ribbon cartridge shafts (see Figure 2:-9).
7. Place the ribbon cartridge onto the ribbon cartridge supports, and press down until it clicks into place (see Figure 2:-9).
8. Close the swing arm, pressing it down until the push latch clicks into place.
9. Close the top cover.
10. Print a Windows test page card to verify that the ribbon cartridge is installed properly. (See *Printing test cards* on page 2-18 for more information.)

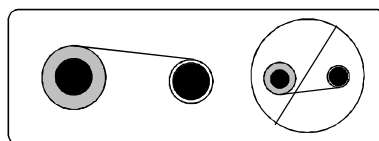
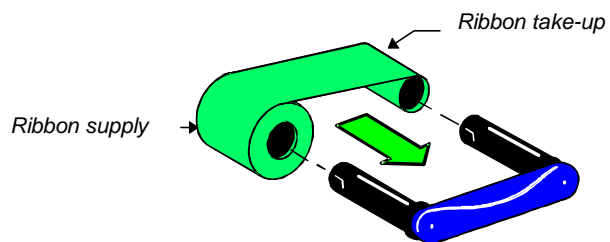


i In the printer properties window, you can set the ribbon type to match the ribbon being used, or you can enable the printer's ribbon type *autodetect* feature. For information on the printer properties window, see *Using the printer properties dialog box* in Chapter 3.



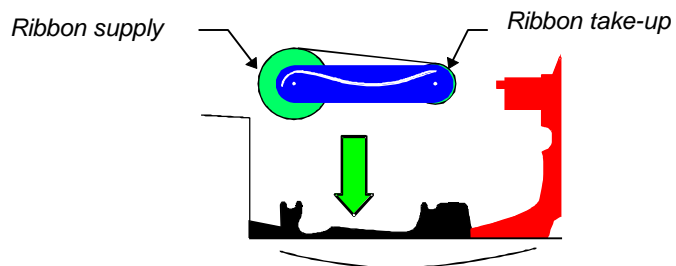
74030c8a

Figure 2:-7 Remove the ribbon cartridge



740030c8b

Figure 2: 8 Replace ribbon on the ribbon cartridge



74030c8c

Figure 2:-9 Replace the ribbon cartridge

Installing the printer driver for the first time

A *printer driver* is software that prepares data for the printer and manages the communication between it and a PC application. The printer driver requires a PC running Microsoft Windows 95/98 or Windows NT. You can obtain the latest copy of the printer driver from the DataCard Internet Web site (**www.datacard.com**) or by calling your DataCard-authorized service provider.

- i** If you now want to install an Express or Select class driver on an NT PC and you had previously installed an Express class or ImageCard IV printer on this PC, see *Re-installing the printer driver* in Chapter 5.
- i** To install a second printer driver of the same class on a Windows 95/98 system, see *Installing a second printer* in Chapter 5. (You cannot install a second printer driver of the same class on a Windows NT system.)
- i** Do not install two copies of the driver unless you connect two ImageCard/UltraGrafix series printers to your PC. You can connect two ImageCard/UltraGrafix printers to a PC running Windows 95/98 only.

Before you start the installation process, there are a few things to keep in mind:

- You should have received two sets of installation diskettes: one for Windows 95/98 and the other for Windows NT. Be sure to use the correct set during the installation.
- If you move the printer from a PC running Windows 95/98 to a PC running Windows NT 4.0, make sure the Ribbon type setting is set to autodetect (using the Properties window) before moving the printer. See *Moving the printer from Windows 95/98 to NT* in Chapter 5 for more information on this.
- If the installation process halts before finishing, look in the Windows Start menu to see if there is an ImageCard/UltraGrafix icon. (See your Windows documentation for instructions.) If there is an ImageCard/UltraGrafix icon, delete it before re-running the installation procedure.

For optimal performance, the printer should be connected to an ECP parallel port. The communications method used for ECP ports is compatible with Windows 95/98 and Windows NT.

For information on verifying your parallel port configuration and assignment, see Chapter 5. For computer configuration requirements, see Chapter 1.

Install the printer driver on Windows 95/98

- i** The following procedure applies only to Windows 95/98 systems. To install the driver on a PC running Windows NT, see *Install the printer driver on Windows NT* on page 2-12.
- i** Upon reboot, most PCs running Windows 95/98 automatically detect that new hardware was attached to the computer. If you power off the PC before attaching the printer and then power it back on, it should display a message asking if you want to install the printer driver as new hardware. Use the following procedure to install the printer driver.
 1. If you power up the PC and it displays a message asking if you want to install the printer driver as new hardware, answer yes, insert the first printer driver diskette into the disk drive of the PC, and skip to step 5 below.
 2. Insert the first printer driver diskette into the disk drive of the PC.
 3. Select Settings and then Printers from the Windows Start menu (see Figure 2:-10). The Printers window appears.
 4. Double-click on the Add Printer icon.
 5. Follow the instructions on your screen and the guidelines below to complete the installation:
 - Click on the Have Disk button when it appears. If needed, click on the Browse button to select the printer driver diskette location.
 - In the Printer Name box, change the printer name to match the name on the front of your printer. For example, you might change "DataCard Select Class" to "ImageCard S2" or "UltraGrafix S". Do not use the <>:"/\ and | characters in the name.
 - Remove the diskette and insert the next diskette when prompted.
 - A Version Conflict dialog might appear as the installer copies files. Select Yes to keep the existing files on your PC.
 - A Code Page Mismatch dialog might appear. Select Yes to keep the existing files on your PC.
 6. Reboot the PC and print a Windows test page card to verify that the printer is working. See *Print a Windows test page* card on page 2-20 for more information.



- i** See *Reconfiguring the printer driver* in Chapter 3 for more information on setting up the driver.

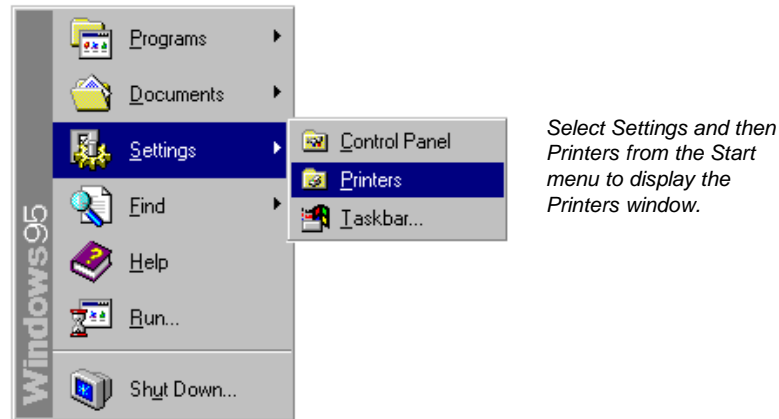


Figure 2:-10 Display the Printers window

Install the printer driver on Windows NT

- i** The following procedure applies only to Windows NT. If you are installing the printer driver on a PC running Windows 95/98, see *Install the printer driver on Windows 95/98* on page 2-11.
- i** To use the driver with NT, your PC must run Windows NT 4.0 with Service Pack 3 or higher. The printer driver is not supported for PCs with Alpha, MIPS, or PowerPC processors.
- i** One ImageCard/UltraGrafix Express, Select or S2 printer can be installed on the PC at a time. If you have a printer driver for another DataCard printer installed on this PC, do the procedure called *Re-install the printer driver in Windows NT* in Chapter 5 instead of this procedure.
1. Be sure you are logged in to the Windows NT system as the administrator before starting this procedure.
 2. Close all open applications. Do not close Windows NT.
 3. Select Settings and then Printers from the Start menu.
 4. In the Printers window, double-click on the Add Printer icon. (Only the administrator can use this icon to install the printer driver on the PC.)
 5. Follow the instructions on your screen and the guidelines below to complete the installation.

- Select the "My computer" choice, and not the "Network" choice. If the "My computer" choice is not available, make sure you have logged on as the administrator.
 - Select the port to which you have connected the printer.
 - Do not select the "Enable printer pooling" choice when installing the printer driver.
 - When the Manufacturers list appears, insert driver diskette 1 and select the Have Disk button. If needed, select the Browse button to specify the location of the printer driver diskette.
 - When the Printer Name box appears, change the printer name to match the name on the front of your printer. For example, you might change "DataCard Select Class" to "ImageCard S2" or "UltraGrafix S". Do not use the <>:"/\ and | characters in the name. The PC will not be able to enable the driver if you use those characters.
 - Printer sharing is not supported by the current version of the printer driver.
 - Do not print a test page as part of the installation. You must select the ribbon type before printing a test page, as explained below.
 - Remove the current diskette and insert the next diskette when prompted.
 - A Version Conflict dialog might appear during the installation. If so, select Yes to keep the existing files on your PC.
6. Remove the diskette and restart Windows NT when prompted after the printer driver is installed.

Note: If you earlier asked to print a test page, test page messages might appear at the same time as the prompt to restart Windows NT. Even if the test page does not print, select "Yes" when the message appears. Restart Windows NT and continue to follow this procedure.

7. When the PC restarts, log in as the administrator again, and follow instructions to update the printer firmware if prompted.
8. If a message appears about updating the printer firmware, follow the on-screen instructions to do this.
9. If the PC attached to the printer has other users, set user permissions to support printing or to prevent access to the printer. To change access for other users, make sure you have restarted Windows NT and then do the following:

a) From the Windows taskbar, select Start, then Settings, and then Printers. The Printers window appears.

2-14 Getting started

b) Highlight the printer driver icon by clicking on it once. The printer driver icon has the name you entered earlier when installing the printer driver.

c) From the menu bar, select File and then Properties. The printer's Properties window appears.

d) Select the Security tab.

e) Click the Permissions button to open the Printer Permissions dialog box.

f) For users or groups listed on the Printer Permissions dialog box, select the type of access for each user or group.

g) Select the Add button to open the Add Users and Groups dialog box.

h) Select the Show Users button.

i) Select the name of the user (or group) to add to the printer and click the Add button.

j) From the Type of Access list, select the access. For users who should not print to the printer, select No Access. For those who will use the printer, select Full Control. These users will have the same access level as the administrator. They will be able to see all messages and perform other actions, such as deleting the printer driver. (Messages inform users when they need to change the ribbon, load cards, and fix problems.)

k) Repeat steps *g* to *j* to add other users or groups.

l) Select OK to save the changes and close the window.

m) Select OK to save the changes and close the Printer Permissions window. You can leave the Properties and Printers windows open.

10. Enable printer features by setting the values for the following document default settings listed below. These items are in the Default Document Properties dialog box. To open this window, see *Using the default document properties dialog box (Windows NT only)* in Chapter 3.

Be sure to set these items in the order listed:

- Printing on both sides (duplex printing)

- Duplex method (automatic or manual)
 - Ribbon type
 - Other values based on your card design
11. Print a Windows test page card from the PC to verify that the driver is installed correctly. See *Print a Windows test page* card on page 2-20 for instructions.



- i** See *Reconfiguring the printer driver* in Chapter 3 for more information on setting up the driver.
- i** If you downloaded the driver from the Internet, you can delete the folder and the disk1 and disk2 folders from your hard drive after installing the driver. You can also delete the downloaded file.
- i** The printer settings just made in the driver controls can be overridden by your card-printing application.

Magnetic stripe encoding

Three formats of magnetic stripe encoding are available:

- IAT
- NTT, a card standard commonly used in Japan. (See *Notes on NTT magnetic stripe encoding* in Chapter 5 for important information about magnetic stripe encoding in the NTT format.)
- binary, for those who do not wish to use IAT or NTT

If your printer is equipped with the magnetic stripe option, there are three settings you might need to address:

- Its encoding format
- The number of encoding attempts that will be made in case the first attempt at encoding fails
- The magnetic stripe unit's encoding current level, or *coercivity*:
 - High-coercivity cards — the stripe on these cards is usually black or nearly black.
 - Low-coercivity cards — the stripe on these cards is usually brown.
 - NTT cards — see *Notes on NTT magnetic stripe encoding* in Chapter 5 for more information on working with these cards.

A higher electrical current is used to encode the high-coercivity cards than the low-coercivity cards. You cannot use high-coercivity cards with a card-printing application that uses the low-coercivity format, and you also cannot use low-coercivity cards with a high-coercivity application.

Set the magnetic stripe values

1. Use the information above to determine the coercivity rating for the magnetic stripe cards you will be using.
2. Click on the Windows Start button and select Settings.
3. Select Printers and click on the printer icon. (The icon has the name chosen during installation.)

4. Open the magnetic stripe settings:

Windows 95/98 users: Go to the File menu, select Properties, and click on the Mag Stripe Settings tab in the dialog box (see Figure 2:-11).

Windows NT users: Go to the File menu and select Document Defaults. Click on the Advanced tab if necessary. Scroll down to the bottom of the list (see Figure 2:-12). Click on the plus signs (+) for Document Options and Printer Features to open up the entries beneath these headings.

5. Select the encoding format you will use. If the format you want to use is anything other than IAT or NTT, select Binary.
6. Select the coercivity needed for the magnetic stripe cards you will be using.
7. Raise or lower the number of encoding attempts by clicking on the up or down arrow at the bottom of the Mag Stripe Settings tab box.
8. Click OK.



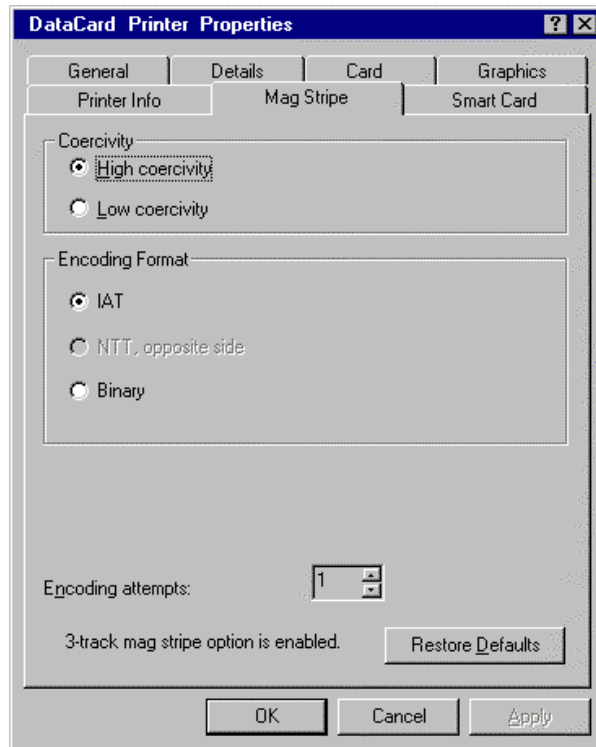


Figure 2:-11 Magnetic stripe settings tab in Windows 95/98

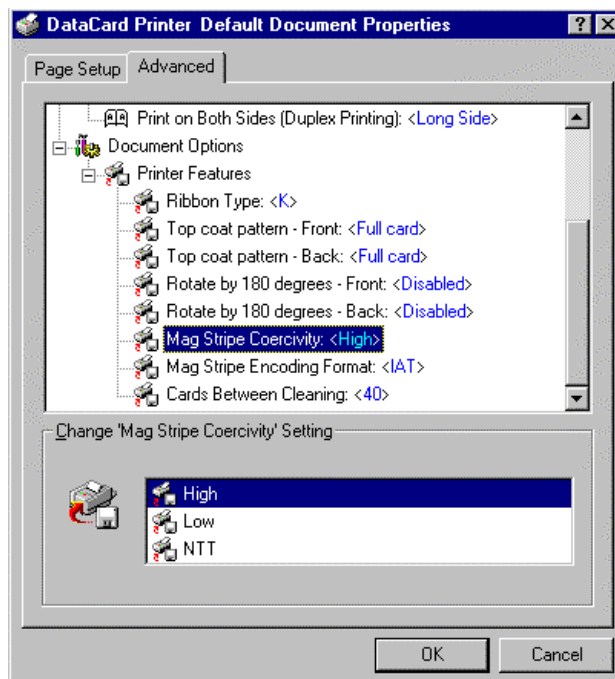


Figure 2:-12 Magnetic stripe settings in Windows NT

Printing test cards

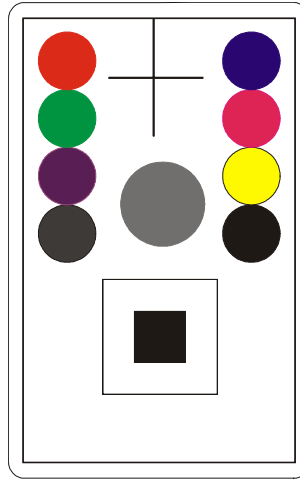
You can print three types of test cards on your ImageCard/UltraGrafix machine:

- *Printer test card* – You can print a printer test card on the printer to confirm that it is working properly (see Figure 2:-13 and Figure 2:-14).
- *Windows test page card* – You can print a Windows test page card to confirm that the printer driver is communicating correctly with the printer and that the printer is working properly (see Figure 2:-16).
- *Magnetic stripe test card* – On printers equipped with the magnetic stripe option, you can run one of these cards to confirm that the printer is recording magnetic stripe data correctly. See *Printing magnetic stripe test cards* on page 2-23 to learn how to create a magnetic stripe test card.

Print a printer test card

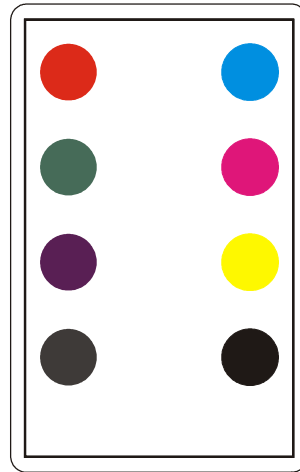
- i** The printer need not be connected to a PC to print this type of test card.
1. Power off the printer.
 2. Confirm that all supplies are loaded: cards, ribbon, and the printhead cartridge. If your printer is equipped with the magnetic stripe option, be sure that you have magnetic stripe cards in the card cartridge.
 3. Power on the printer while pressing and holding the Ready button (see Figure 2:-15). Release the Ready button when you hear a series of tones. Allow 30 to 60 seconds for the printer to begin printing the test card. The status light will flash green while the printer works.





74030s6

Figure 2:-13 Printer test card — Express class only



ice0016s

Figure 2:-14 Printer test card — S and S2 classes

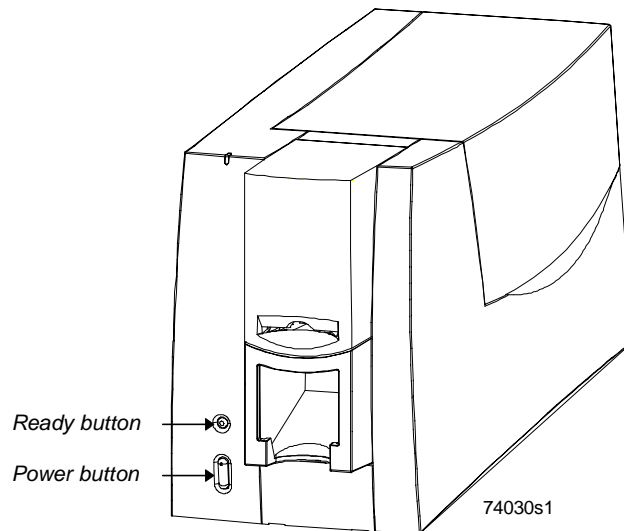


Figure 2:-15 Locating the power and Ready buttons (Express and S models shown)

Print a Windows test page card

- i** The printer must be connected to a PC to print this type of test card.
- 1. Select Settings and then Printers from the Windows Start menu (see Figure 2:-10 on page 2-12). The Printers window appears.
- 2. Click once on the printer driver icon. The icon has the name chosen during installation.
- 3. Select Properties from the File menu. The printer's Properties dialog box appears (see Figure 2:-18 if you are using Windows 95/98 or Figure 2:-19 for Windows NT).
- 4. Select the Print Test Page button on the General tab. The printer prints a Windows test page card.
- i** This card is created by Microsoft Windows and looks similar to the top of the Windows test page. Because of the small size of a card as compared to a sheet of paper, it is normal for only the top part of the test page to appear and for some of the text to appear to be going off the card. For examples, see Figure 2:-16 and Figure 2:-17.



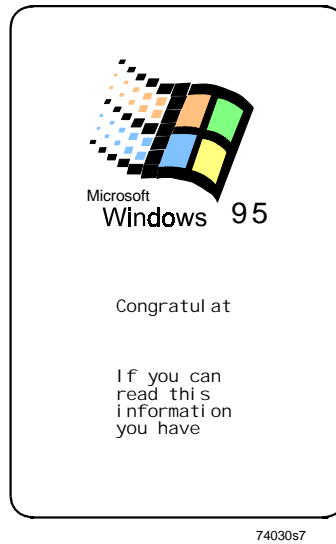


Figure 2:-16 Windows test page card, portrait orientation (Windows 95 version)

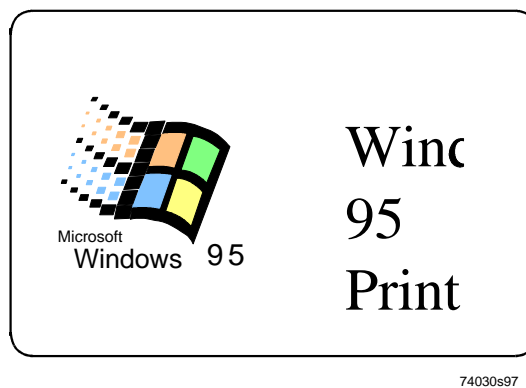


Figure 2:-17 Windows test page card, landscape orientation (Windows 95 version)

- i** The Windows 98 and Windows NT test page cards look similar to these examples.

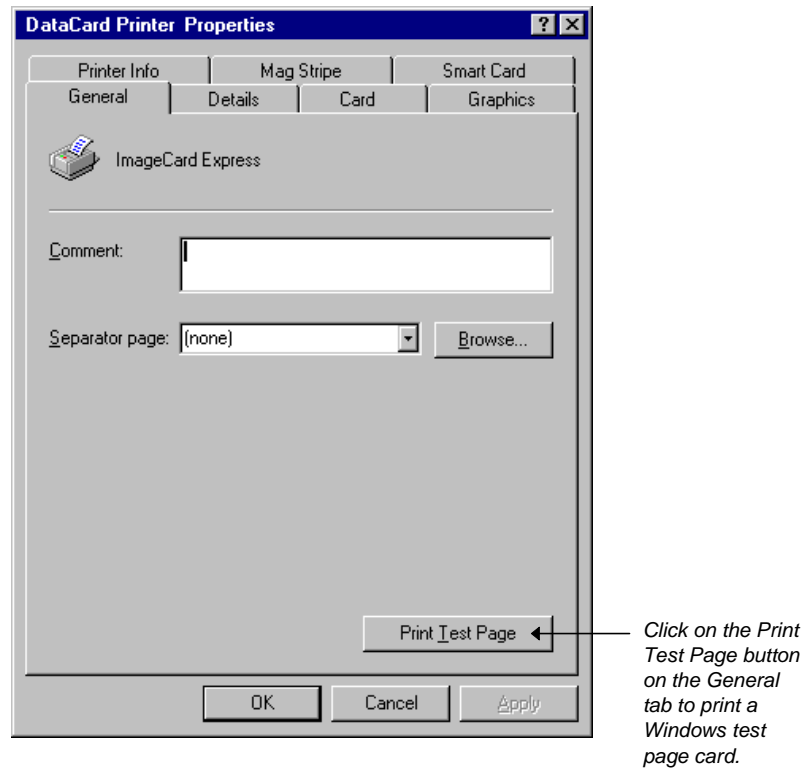


Figure 2:-18 Print a Windows test page card *in Windows 95/98*

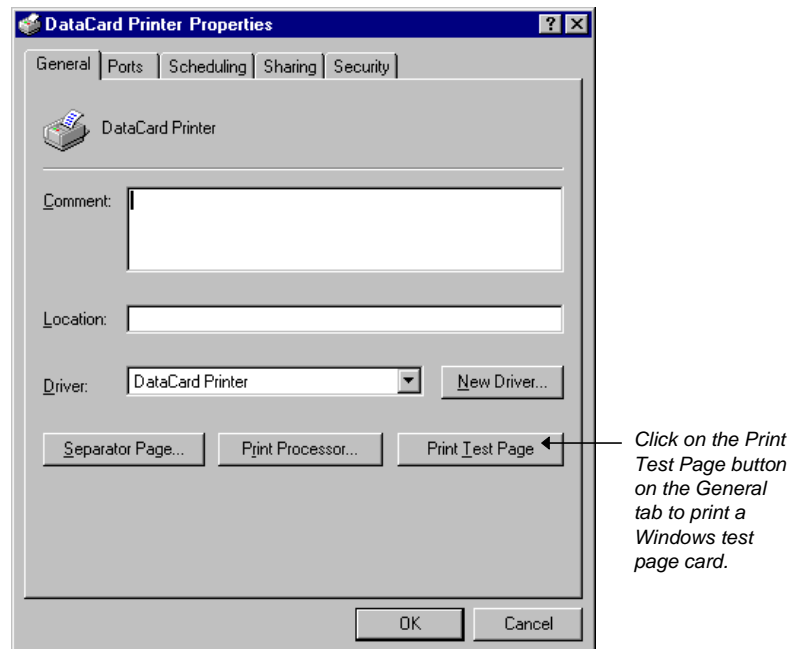


Figure 2:-19 Print a Windows test page card in *Windows NT*

Printing magnetic stripe test cards

If your printer is equipped with the magnetic stripe option, you can create a *magnetic stripe test card* to verify that the magnetic stripe option is working correctly.

Print a magnetic stripe test card

- i** The printer must be connected to a PC to create this type of test card.
- i** Be sure to use only magnetic stripe cards to create this type of test card.
- 1. Insert a blank magnetic stripe card into the printer's exception slot, with the magnetic stripe facing down and to the right.
- 2. Open the printer's status monitor by double-clicking on the status monitor icon in the lower-right corner of the screen.
- 3. Click on the status monitor's Mag stripe card button. See Figure 2:-20. The printer encodes data on the card's magnetic stripe. At the same time, it also prints this data on the face of the card.
- 4. When the printer ejects the completed test card, you can use a magnetic stripe card reader to read the magnetic stripe data recorded. If the data read by the reader is the same as what is printed on the face of the test card, the printer's magnetic stripe option is working correctly.



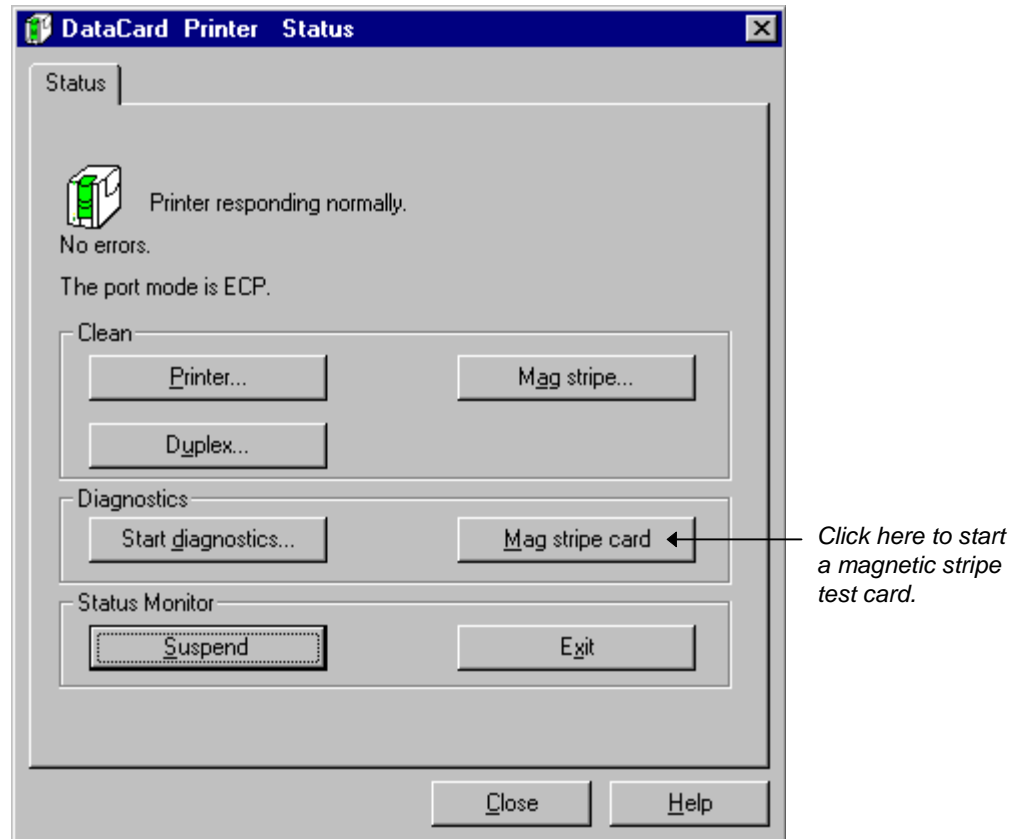



Figure 2:-20 Creating a magnetic stripe test card

The basics of printing from an application

You can use the printer to print cards from many applications. If you use DataCard's QuikWorks, see the user information for the application to learn how to do it. If you use an application in which you can save the result and edit it again, such as Windows WordPad, follow these guidelines to print cards:

- In the application, select the ImageCard/UltraGrafix printer as the current printer.
 - Using the application's page setup feature, set the paper size to CR80 Card 2.13" x 3.38" and set all the margins to 0.10", 0.05" or "edge to edge" if the application supports this. Select the orientation for the card design—either portrait or landscape.
 - Format the text to print using a TrueType () font.
 - See Chapter 5 for information on advanced operations such as encoding magnetic stripe data or printing on both sides of a card.
- i** Applications in which you can save the results in a graphic format only, such as Windows Paint, will require experimenting to get an image size that prints on one card only.

Chapter 3: Day-to-day printer use

3

This chapter contains information on checking the ImageCard or UltraGrafix photo ID printer's status or changing its settings, cleaning and maintaining the printer, and configuring the printer driver.

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Using the default document properties dialog box (Windows NT only)	3-5
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Accessing printer features

You can check the status of the printer and change settings that affect how the printer works from the following windows:

- Printer properties window
- Default document properties window (Windows NT only)
- Status monitor

This section describes how to open and use these windows.

Using the printer properties dialog box

The printer properties dialog box contains many of the controls for the printer, including card-printing parameters and settings for magnetic stripe and smart card encoding.

1. Click on the Start button in the Windows taskbar.
2. Select Settings and then Printers (see Figure 3:-1). The Printers window appears.
3. Click once on the printer driver icon (see Figure 3:-2 or Figure 3:-3). (The icon has the name chosen during installation.)
4. Select File from the Printers menu, and then select Properties (see Figure 3:-2 if you are using Windows 95/98 or Figure 3:-3 for Windows NT). The printer's Properties window appears.
5. Select values and change settings as you wish.
6. When you are done, click on the OK button to save your changes, or on the Cancel button to exit without saving.



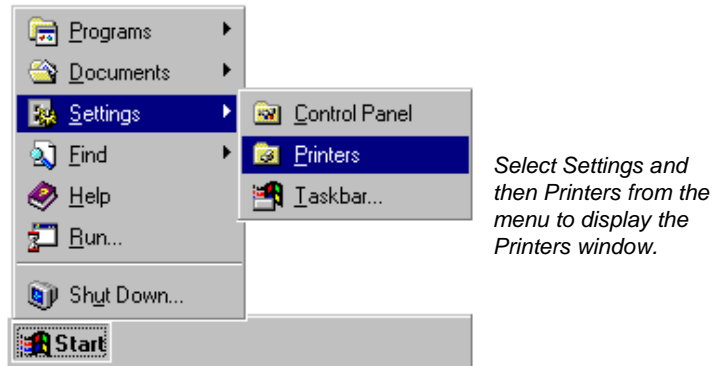


Figure 3-1 Open the Printers dialog box

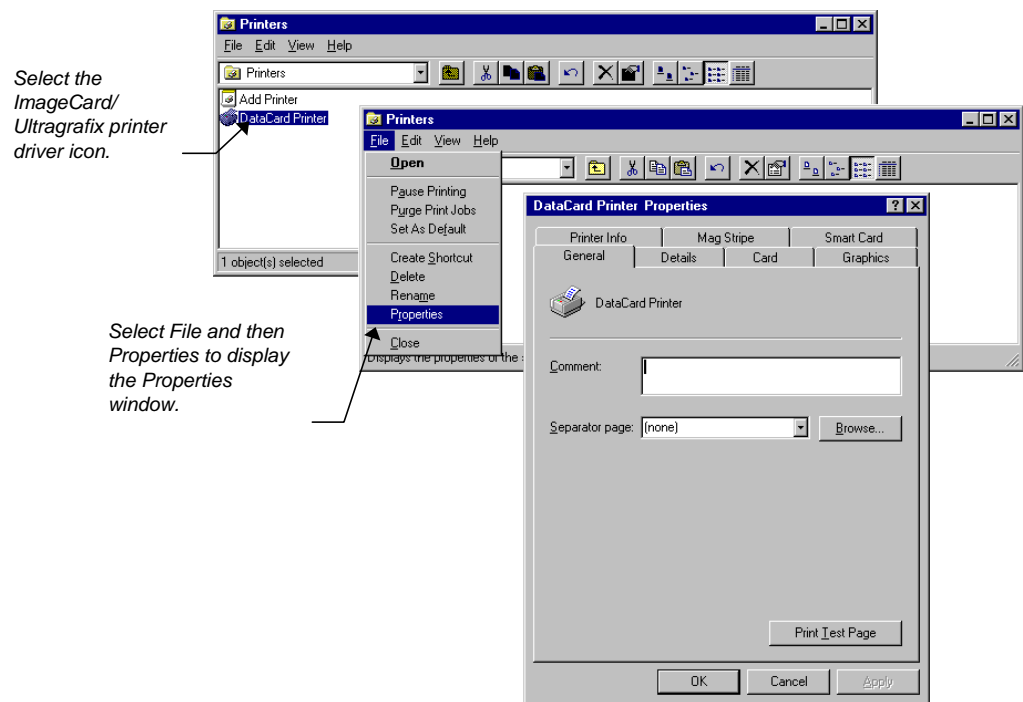


Figure 3-2 Display the Properties dialog box (in Windows 95/98)

3-4 Day-to-day printer use

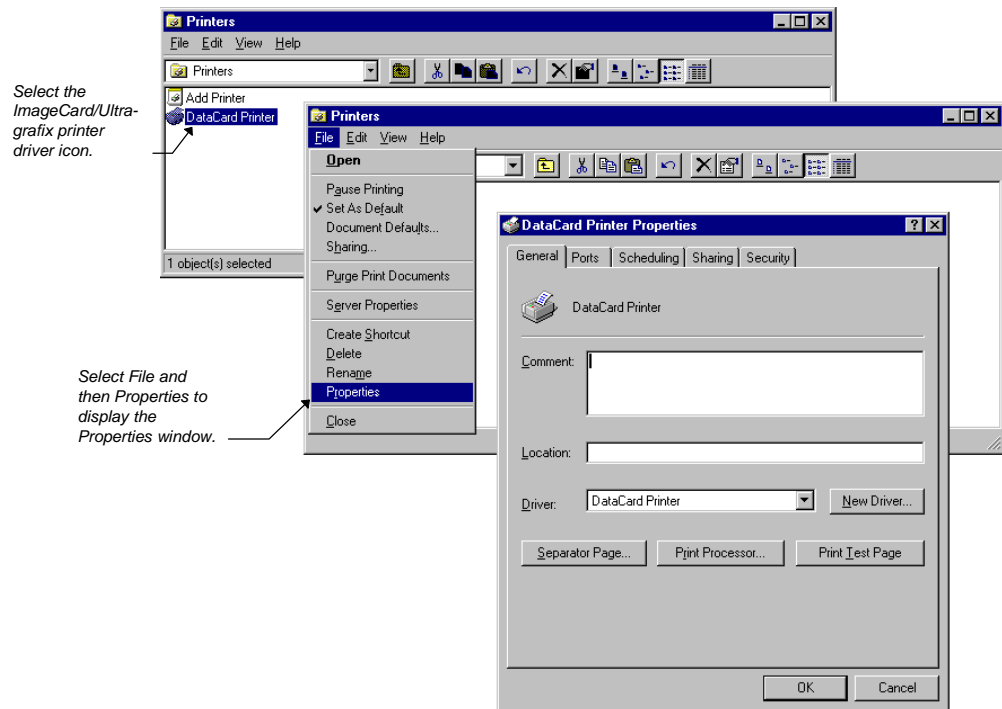


Figure 3:-3 Display the Properties dialog box (in Windows NT)

Using the default document properties dialog box (Windows NT only)

This dialog box contains additional printer controls not found in the Windows NT printer properties window.

- ❶ Windows 95/98 has no default document properties dialog box.
1. Click on the Start button in the Windows taskbar.
2. Select Settings and then Printers (see Figure 3-1 on page 3-3). The Printers window appears.
3. Click once on the printer driver icon. The printer driver icon has the name chosen during driver installation. Select Document Defaults from the File menu (see Figure 3-4). The Default Document Properties window appears. Most of the items you will want to use are in the Advanced tab.
4. Select values and change settings as you wish.
5. When you are done, click on the OK button to save your changes, or on the Cancel button to exit without saving.

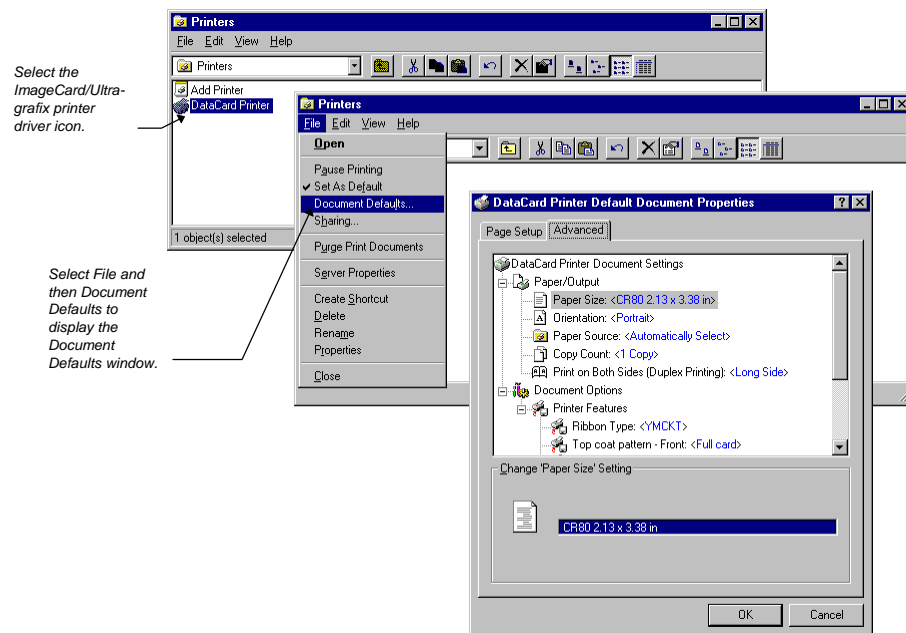






Figure 3-4 Display the Defaults Document Properties window (Windows NT only)

Using the status monitor

The status monitor displays the status of the communication between the printer and its printer driver. It also allows you to perform cleaning operations and diagnostic tests. The status monitor icon — which usually appears in the lower-right corner of the screen — gives some information about the state of the driver-printer communication:

Table 3:-1 Status monitor icons

Status icon	Description	Indicates
	This status monitor icon is white with a green card cartridge and output stacker.	The status monitor is active and communicating with the printer.
	This status monitor icon is gray.	The status monitor is suspended and not monitoring the printer for status, including errors. The status monitor automatically suspends when the printer has not printed a card for 30 seconds or more. When the status monitor is suspended, you can connect another printer to the ECP parallel port that the printer uses or run PC maintenance tools, such as ScanDisk, CheckDisk or Disk Defragmenter.
	This status monitor icon is white with a green card cartridge and card output stacker and a white exclamation point in a red circle.	The status monitor is active but is not communicating with the printer. The printer might be off, cables might be loose, or a problem might exist.
	This status monitor icon is white with a green card cartridge and card output stacker and a blue magnifying glass.	The status monitor is in diagnostics mode. i Use diagnostics only when your DataCard-authorized service provider asks you to do so to help in solving problems with the printer.

You can click on the Help button to display further information on the status monitor.

Opening and using the status monitor

You can use the status monitor window to do the following:

- View detailed status monitor information
- Start a cleaning cycle
- Suspend and resume the status monitor
- Exit the status monitor
- Start or quit diagnostics

You can do one of the following to display the status monitor window:

- Right-click on the status monitor icon in the lower-right corner of the screen, and then select Display status from the popup menu. The status monitor window appears.

or

- Double-click on the status monitor icon in the lower-right corner of the screen. The status monitor window appears.

Viewing status monitor information

The three lines in the status monitor window display the following detailed information (see Figure 3:-5):

- Line 1 displays the current state of the status monitor or printer.
- Line 2 shows any status monitor error messages.
- Line 3 displays the current parallel port mode.

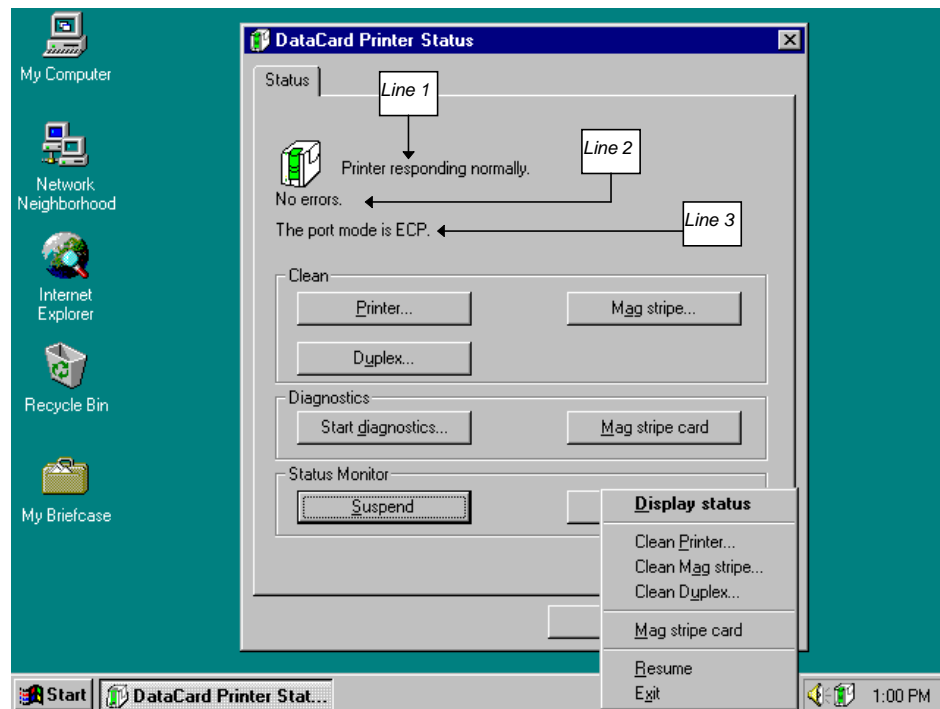


Figure 3-5 The status monitor and its status information

Starting a printer cleaning cycle

To begin a cleaning cycle, select the Printer button in the Cleaning section of the status monitor window, or right click on the status monitor icon and select Clean printer now from the popup menu. For further information see *Performing a cleaning cycle* on page 3-12.

i In diagnostics mode you cannot select the Printer button to perform a cleaning cycle.

Cleaning the magnetic stripe head

Click on the Clean mag stripe button to clean the magnetic stripe hardware in the printer. See *Cleaning the magnetic stripe head* on page 3-17 for instructions.

Cleaning the duplex module

If you have an ImageCard S2 or UltraGrafix S2 printer, you can clean the printer's duplex module. To do this, select the Duplex button in the Cleaning section of the status monitor window, or right click on the status monitor icon and select Clean duplex from the popup menu. For further information, see *Cleaning the duplex module* on page 3-19.

Starting or quitting diagnostics

i Start diagnostics only when a DataCard-authorized service provider asks you to do so.

The Start Diagnostics button on the Status tab switches the printer driver from printing mode to diagnostics mode. When you select this button, a message appears informing you that printing of your cards will stop in diagnostics mode.

The Quit Diagnostics button on the Status tab switches the printer driver from diagnostics mode to printing mode. When you select this button, a message appears informing you that the printer will reset; you can resume printing cards. The ribbon and internal components will move into the position for printing cards.

i If you have entered diagnostics mode and selected the Close button in the status monitor, a message appears that allows you to quit diagnostics before closing the status monitor window.

Creating a magnetic stripe test card

Click on the Mag stripe card button to create a magnetic stripe test card. Depending on what type of magnetic stripe encoding you use, the test card should look like the one in Figure 3:-6 (IAT encoding) or Figure 3:-7 (NTT encoding). For more information on this, see *Printing magnetic stripe test cards* in Chapter 2.

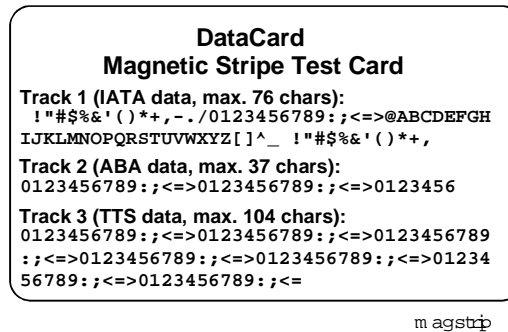


Figure 3-6 Magnetic stripe test card (IAT encoding)

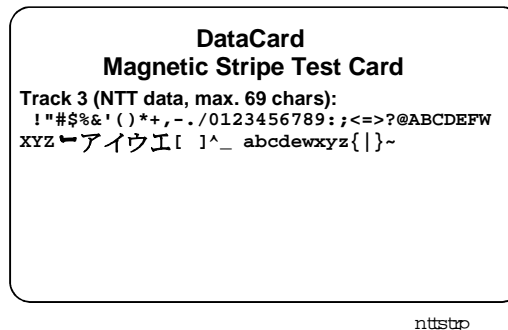


Figure 3-7 Magnetic stripe test card (NTT encoding)

Suspending or resuming the status monitor

When the status monitor Suspend button is available, you can click on it to *suspend* the status monitor. When it is suspended, the status monitor does not communicate with the printer or display printer messages.

If a Resume button is visible, the status monitor is currently suspended. If you click on Resume, the status monitor tries to restore communications and display printer messages. If the printer is powered off or not working correctly, the status monitor will remain suspended.

Exiting the status monitor

To exit the status monitor and close its window, right click on the status monitor icon and select Exit. You should exit the status monitor when you receive instructions to do so, such as when you run PC maintenance tools.

i You cannot exit the status monitor while printing a card.

Using What's This help (Windows 95/98 only)

What's This help provides information about specific items or areas of the printer driver without interrupting your work (see Figure 3:-8).

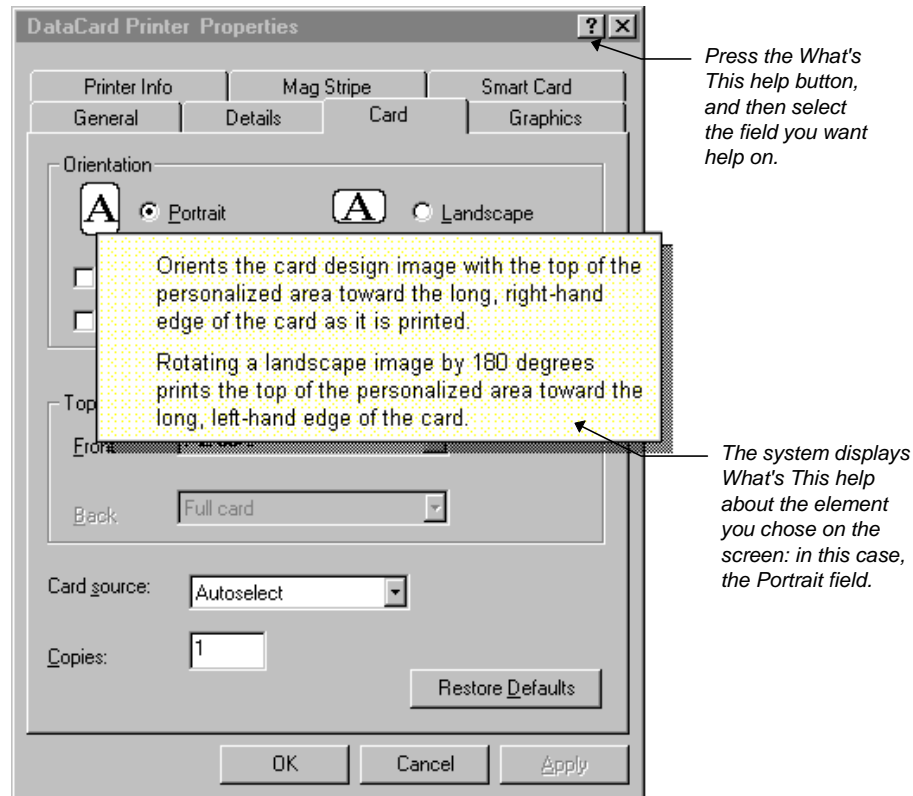


Figure 3:-8 What's This help

What's This help provides basic information about what an item or element does. It does not include step-by-step procedures or detailed conceptual information.

- i** In Windows NT, What's This help is not available for all printer-related items. If you cannot get What's This help for a field, there might be a Help button to click on.

Access What's This help

1. Click on the What's This help button (see Figure 3:-8). Notice that the mouse pointer now has a question mark attached to it.
2. Click on the item or area you have questions about. A popup window displays information about the item or area you selected.

3. To close What's This help, click anywhere on the screen or press the ESC key on your keyboard.



Performing a cleaning cycle

The rollers on the printer should be cleaned whenever the print quality decreases. Typically this will be after printing from 5 to 50 cards, depending on the environment in which the printer is used. For ImageCard and UltraGrafix Express printers, the default is 20 cards; for the S and S2 models, it is 40 cards. You might want to clean more frequently if:

- The cards, especially magnetic stripe cards, have particles on them
- A monochrome ribbon is used
- The printer is operated in a relatively dirty environment

Use a standard cleaning card (part number 557297-001) for cleaning (see Figure 3:-9). To order cleaning cards, contact your DataCard representative.

Clean the rollers

1. Remove the card cartridge.
 2. Remove the ribbon cartridge.
 - a) Lift open the top cover.
 - b) Press down on the swing arm. The push latch will release the swing arm. Lift the swing arm until it is fully open.
 - c) Grasp the ribbon cartridge handle and lift up to remove the ribbon cartridge (see Figure 3:-11).
- i** If you do not remove the ribbon cartridge and the ribbon sticks to the cleaning card, remove the cleaning card and repeat this procedure with a new cleaning card.
3. Peel the protective paper backing from both sides of the cleaning card.
 4. Orient the cleaning card:
 - If your printer has the smart card option *and* it is an Express or S model, orient the cleaning card so that the side facing up shows a picture of a plastic card with a smart card chip (see Figure 3:-9).
 - Otherwise, orient the card so that the side showing only an arrow faces up (as shown in Figure 3:-10).

5. Insert the cleaning card near the bottom of the card cartridge cavity (see Figure 3:-13).
6. Start a cleaning cycle by doing one of the following:
 - Click the OK button when the printer driver displays a message requesting that you clean the printer. (If you do not click OK at this point, the message will redisplay before printing each card until you run a cleaning cycle.)
 - Click the Clean printer now button in the printer driver status monitor window. (Right-click on the printer icon in the lower right corner of the screen and select Display status to see the status monitor window.)
7. Remove the cleaning card from the card output stacker after the printer has completed the cleaning cycle.
8. Replace the card cartridge.
9. Replace the ribbon cartridge.
 - a) Lift open the top cover.
 - b) Press down on the swing arm. The push latch will release the swing arm. Lift the swing arm until it is fully open.
 - c) Place the ribbon cartridge onto the ribbon cartridge supports and press down until it clicks into place (see Figure 3:-12).
 - d) Close the swing arm, pressing it down until the push latch clicks into place.
 - e) Close the top cover.
10. Discard the used cleaning card. The rollers are clean, and the printer is ready to resume normal operation.



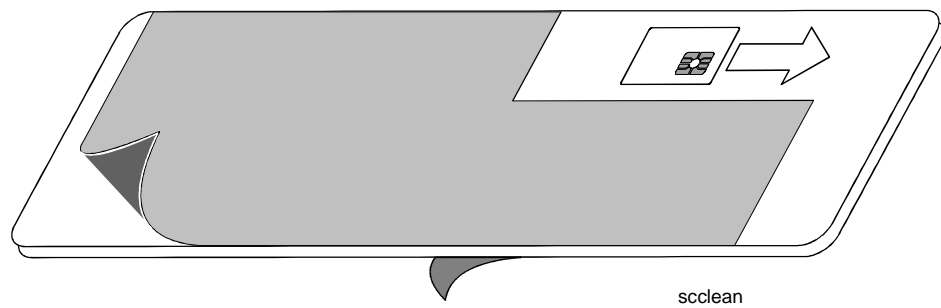


Figure 3:-9 Cleaning card, oriented for printers with the smart card option and no duplex module

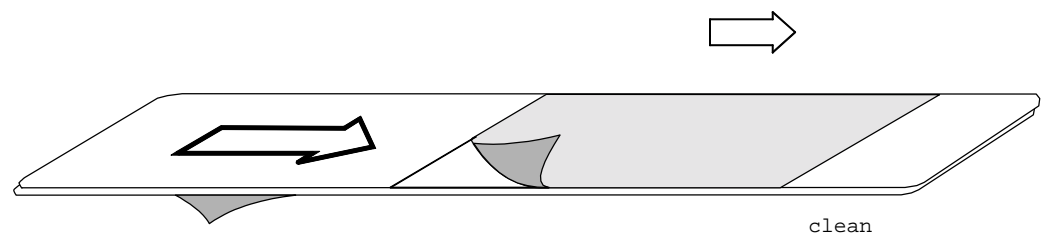


Figure 3:-10 Cleaning card, oriented for all printer models *except* those with the smart card option and without the duplex module

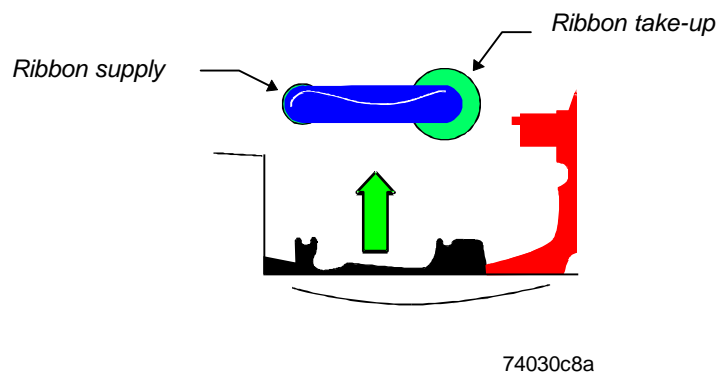


Figure 3:-11 Remove the ribbon cartridge

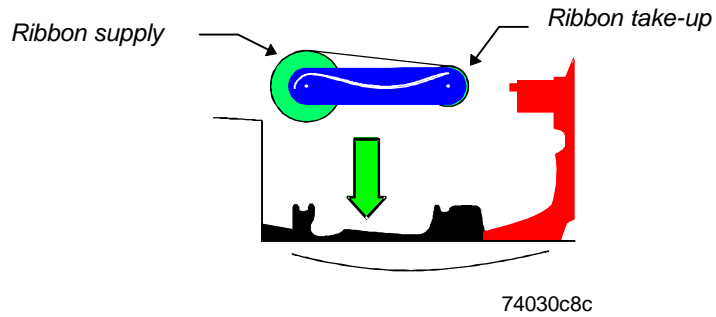


Figure 3:-12 Insert the ribbon cartridge

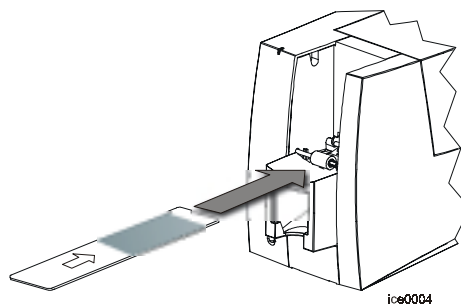


Figure 3:-13 Insert the cleaning card: All models *except* those with the smart card option and without the duplex module

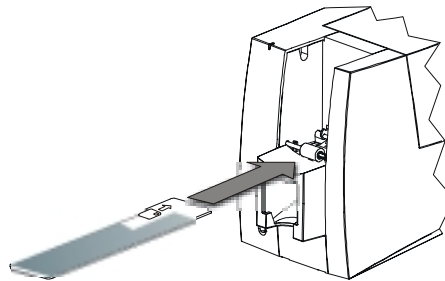


Figure 3:-14 Insert the cleaning card: Only for models with the smart card option and *no* duplex module

Cleaning the printhead

A decrease in print quality indicates the printhead may be dirty. Use isopropyl alcohol and a lint-free cloth to clean the printhead. Do not use a cotton swab. The fibers from the cotton can stick to the printhead.

Clean the printhead

1. Power off the printer, and disconnect it from the power source.
2. Moisten a lint-free cloth with isopropyl alcohol.
3. Press down on the swing arm. The push latch will release the swing arm. Lift the swing arm until it is fully open.
4. Dab isopropyl alcohol on the printhead. Do not touch the printhead with your fingers. The oils on your fingers can damage the printhead.
5. Close the swing arm, pressing it down until the push latch clicks into place.
6. Connect the power cable to the power source and power on the printer.
7. Print a Windows test page card to verify image quality. If card quality is still inadequate, see Chapter 4. Call your DataCard-authorized service provider for assistance if the problem persists.



Cleaning the magnetic stripe head

The printer's magnetic stripe head should be cleaned whenever you receive multiple read errors or rejected cards while attempting to encode a magnetic stripe. Generally, you should clean the magnetic stripe head once every 2000 cards. Use the magnetic stripe head cleaning card (part number 590408-002; see Figure 3:-15) to do this.

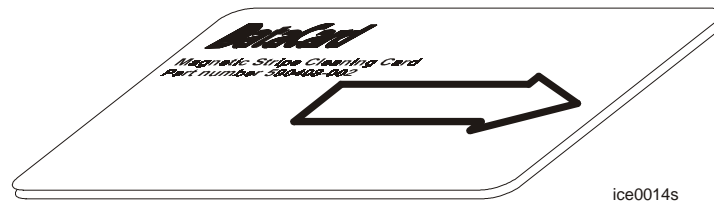



Figure 3:-15 Magnetic stripe head cleaning card

Clean the magnetic stripe head

 Do not peel off the strip on the back of the card. Unlike some other cleaning cards, the magnetic stripe cleaning card does not use an adhesive to clean. The strip is the part of the card that cleans the magnetic stripe head.

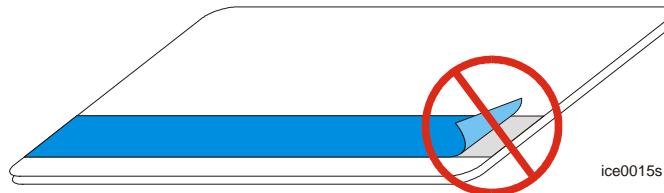


Figure 3:-16 Strip on back of magnetic stripe cleaning card

1. Insert a magnetic stripe head cleaning card into the exception card slot. (You can also remove the card cartridge and insert a card directly between the input card rollers.)
2. Open the status monitor window. To do this, either double-click on the status monitor icon in the lower right corner of the screen, or right-click on the status monitor icon and then select Display status from the popup menu. The printer status dialog box in See Figure 3:-17 appears.
3. Click on the Clean mag stripe button (see Figure 3:-17).

3-18 Day-to-day printer use

4. Remove the cleaning card from the card output stacker after the printer has completed the cleaning cycle.
5. Discard the used magnetic stripe head cleaning card.

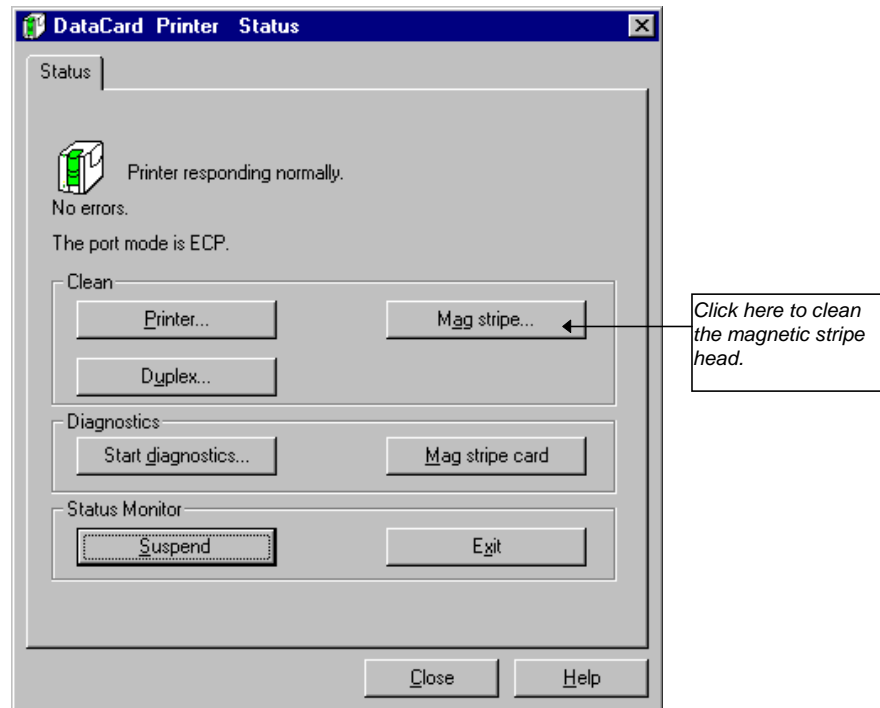



Figure 3-17 Using the status monitor to clean the magnetic stripe head

Cleaning the duplex module

This procedure applies only to ImageCard S2 and UltraGrafix S2 printers. If you have an S2 printer, you might want to clean the printer's duplex module if you have problems with jammed cards.

Clean the duplex module

1. Remove the card cartridge.
2. Remove the ribbon cartridge.
 - a) Lift open the top cover.
 - b) Press down on the swing arm. The push latch will release the swing arm. Lift the swing arm until it is fully open.
 - c) Grasp the ribbon cartridge handle and lift up to remove the ribbon cartridge (see Figure 3:-11).
-  If you do not remove the ribbon cartridge and the ribbon sticks to the duplex cleaning card, remove the duplex cleaning card and repeat this procedure with a new one.
3. Peel the protective paper backing from both sides of the duplex cleaning card (Figure 3:-18).
4. Insert the duplex cleaning card near the bottom of the card cartridge cavity (see Figure 3:-13).
5. Right-click on the printer icon in the lower right corner of the screen and select Display status to see the status monitor window. Start a duplex cleaning cycle by clicking the Duplex button in the Cleaning section of the printer driver status monitor window.
6. Remove the duplex cleaning card from the card output stacker after the printer has cleaned the duplex module.
7. Replace the card cartridge.
8. Replace the ribbon cartridge.
 - a) Lift open the top cover.
 - b) Press down on the swing arm. The push latch will release the swing arm. Lift the swing arm until it is fully open.
 - c) Place the ribbon cartridge onto the ribbon cartridge supports and press down until it clicks into place (see Figure 3:-12).

- d) Close the swing arm, pressing it down until the push latch clicks into place.
 - e) Close the top cover.
9. Discard the used duplex cleaning card.

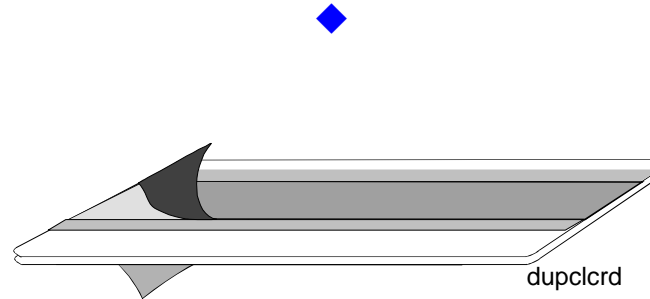


Figure 3:-18 Duplex cleaning card

Reconfiguring the printer driver

Upon installation, the printer driver is automatically configured to fit your system. When you have completed your card design or if you change your system, you may need to reconfigure the printer driver. You may view or change the following types of settings:

- Card design
- Port
- Printer supplies and cleaning intervals
- Magnetic stripe (if the magnetic stripe option is installed)
- Smart card (if the smart card option is installed) — you can view smart card configuration information but you cannot change it.

Windows 95/98 users can also get the following read-only information from the printer driver (this information is not available in Windows NT):

- Printer version
- Printhead manufacture date
- Print cycles, since last reset and total cards printed
- The type of magnetic stripe option (available only if a magnetic stripe option is installed)

i For information on specific fields, see the online help provided with the printer driver (F1 or What's This help in Windows 95/98).

Reconfigure the printer driver

1. Open the appropriate window:

Windows 95/98 users: See the instructions in *Using the printer properties* on page 3-2.

Windows NT users: See *Using the default document properties dialog box (Windows NT only)* on page 3-5. If necessary, click on the plus sign (+) next to Document Options and Printer Features to display the entries beneath these headings.

2. Change the following settings as needed to these frequently-used adjustments (note that your card creation application can override these setting):

- You can set the card image orientation. In *Windows 95/98*, select the Card tab; in the Orientation area, click Portrait or Landscape to select the orientation that matches your card design. In *Windows NT*, select Orientation and then choose Portrait or Landscape.
- If you use a print ribbon that contains topcoat, you can also specify where on the card to apply topcoat. Do not apply topcoat to a magnetic stripe or a smart card chip, for example. Follow these instructions to specify where to apply topcoat:

Windows 95/98 users: In the Card tab, use the Top coat pattern area to specify the areas of both sides of the card you want the printer to apply protective topcoat to.

Windows NT users: In the Windows NT Default Document Properties window, specify the pattern you want for both sides in Top coat pattern - Front and Top coat pattern - Back.

- If you will not change ribbon type frequently, specify the ribbon type:

Windows 95/98 users: Go to the Graphics tab and set Ribbon type to the type of ribbon you use. See the notes below.

Windows NT users: Click on Ribbon Type and select a ribbon type below.

i If you are using Windows 95/98 and you frequently change the type of ribbon you print with, set Ribbon type to Autodetect.

(Any time you change the ribbon in the printer, you must power off and power on the printer.) You may find that the printer uses more print ribbon with the auto-detect feature, since the printer advances the ribbon for several panels at power-up until it has identified the ribbon type. This may not be much of a problem unless you frequently power the printer on and off.

i If you are using Windows 95/98 and you plan to use a one-color ribbon, uncheck Always auto-detect ribbon type and set the Ribbon type to "K" (if the ribbon has no topcoat) or "KT" (if the ribbon has topcoat). (See *Ribbon* in Appendix B for a list of supported ribbons.)

- If you are using Windows 95/98 and you plan to print with a one-color ribbon, select a dithering option in the Graphics tab. The sample image changes to show the effect of the option you choose. *This is available in Windows 95/98 only.*
 - In Windows 95/98, you can click and drag the Intensity pointer to change the print darkness. *This is available in Windows 95 only.*
 - The printer is installed with a default spool setting of "Spool printing so program finishes printing faster." Use this setting, not "Print directly to printer." The default setting is required to print multiple copies of the same card, print two-sided cards, and enable the Retry button in messages boxes on the PC. You can find this setting by opening the printer Properties dialog box (see Chapter 3). *In Windows 95/98*, select the Details tab and click on the Spool Settings button. *In Windows NT*, click on the Scheduling tab.
3. When you finish viewing or changing settings, click OK to save the settings or Cancel to discard them. This closes the Properties window (Windows 95/98) or Default Document Properties window (Windows NT).
- i** For information on specific screen items, see the online help provided with the printer driver (F1 or What's This help). If you do not know how to use What's This help, see *Using What's This help (Windows 95/98 only)* on page 3-11.



Chapter 4: Troubleshooting

4

This chapter contains information on troubleshooting the ImageCard or UltraGrafix photo ID printer, identifying and fixing errors, and obtaining service for the printer.

Contents

Understanding messages	4-2
General troubleshooting	4-3
Making repairs and obtaining service	4-11

Understanding messages

The printer driver displays a message when the printer is unable to process and print a card correctly. If a condition occurs that you can fix, the message displayed will contain brief instructions on how to fix it (for an example of this type of message, see Figure 4:-1). You can also click on the Help button in the message window for more detailed instructions on fixing the problem.

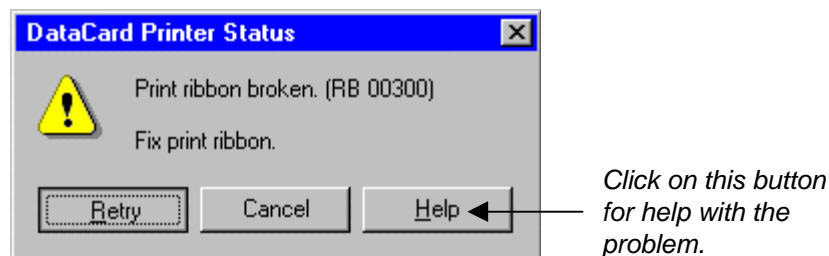


Figure 4:-1 Example message (ribbon break)

If a condition occurs that requires service, the message will begin with the words "Service required." If the printer driver displays a "Service required" message, contact your DataCard-authorized service provider for assistance. Do not attempt to fix the problem without the assistance of your DataCard-authorized service provider because you may cause damage to the printer.

- i** Before you call your DataCard-authorized service provider, write down the message (including the code number in parentheses) and then locate the serial number of your printer. For more information, see *Making repairs and obtaining service* on page 4-11.



Figure 4:-2 Service required message

General troubleshooting

The purpose of this section is to help you fix print quality problems. Often print quality problems result from dirty or dusty equipment. To diagnose and fix print quality problems, follow the troubleshooting procedure below.

- i** In your troubleshooting, it may help to look in Chapter 5 to see if there is a section that discusses the problem you're having.

Troubleshoot and fix print quality problems

1. Remove the ribbon, printhead cartridge and card cartridge and blow out any visible dust or debris.
 2. Perform a cleaning cycle using a cleaning card to clean the printer. (For more information on performing a cleaning cycle, see *Performing a cleaning cycle* in Chapter 3.)
 3. Run a printer test card. (For more information on printing a printer test card, see *Printing test cards* in Chapter 2.) If this test card prints correctly, the printer itself is probably working.
 4. Run a Windows test page card. (For more information on printing a Windows test page card, see *Printing test cards* in Chapter 2.) If this test card prints correctly, the communication between the printer and PC is functioning.
 5. If the problem persists, use Table 4:-1 to diagnose and solve it.
- i** After attempting each solution in the table, run a Windows test page card to see if the problem is fixed and the printer is working correctly. If you cannot fix the problem using the solutions in the table, contact your DataCard-authorized service provider for further assistance.



Table 4:-1 Print quality troubleshooting

Symptom	Possible Cause	Solution
One or more unprinted lines run across the entire length of the card. (For example, if the unprinted cards are white, the unprinted line will be white.)	Printhead may be dirty or worn.	Clean the printhead (see <i>Performing a cleaning cycle</i> in Chapter 3). If cleaning does not solve the problem, contact your DataCard-authorized service provider.
Part of the printed	The printhead cartridge	Replace the printhead cartridge

4-4 Troubleshooting

Symptom	Possible Cause	Solution
card is blank.	may not be installed properly.	(see <i>Replacing the printhead cartridge</i> in Chapter 5).
	Cards may not meet specifications or may be dirty.	Obtain and use a different supply of cards (see <i>Card requirements</i> in Appendix B).
	The swing arm may not be latched properly.	Open the swing arm fully and then close it. Be sure that the swing arm latch clicks into place.
	The rollers may be dirty.	Clean the rollers using the cleaning card two or three times. Print a Windows test page card between each cleaning (see <i>Performing a cleaning cycle</i> in Chapter 3).
No image is printed on the card.	The ribbon is loaded improperly (upside down).	Remove and replace the ribbon. (see <i>Loading and replacing the ribbon</i> in Chapter 2).
	The swing arm may not be latched properly.	Open the swing arm fully and then close it. Be sure that the swing arm latch clicks into place.
	Printhead cartridge cable may be loose.	Power off the printer and make sure the printhead cartridge cable is securely connected to the printer (see <i>Replacing the printhead cartridge</i> in Chapter 5). Power on the printer and print a Windows test page card. If the problem persists, contact your DataCard-authorized service provider.
	Cards may not meet specifications or may be dirty.	Obtain and use a different supply of cards (see <i>Card requirements</i> in Appendix B).
Printed cards look faded.	Ribbon may have been stored improperly or damaged.	Change the ribbon and print a Windows test page card (see <i>Loading and replacing ribbon</i> and <i>Printing test cards</i> in Chapter 2).
	The cards may not meet specifications.	Obtain and use a different supply of cards (see <i>Card requirements</i> in Appendix B).
	The printhead may be dirty or worn.	Clean the printhead (see <i>Performing a cleaning cycle</i> in

Symptom	Possible Cause	Solution
		Chapter 3). If cleaning does not solve the problem, contact your DataCard-authorized service provider.
Part or all of the printed image is expanded (see Figure 4:-3).	The printhead is not properly installed.	Remove and replace the printhead cartridge (see <i>Replacing the printhead cartridge</i> in Chapter 5).
	The printer driver is not properly installed.	Re-install the printer driver (see <i>Re-installing the printer driver</i> in Chapter 5).
Part or all of the printed image is compressed (see Figure 4:-4).	The card path may be obstructed.	Check the card transport track and duplex module (if the printer has one) for jams. See the procedures in this chapter for removing torn or jammed ribbon and for removing jammed cards).
	The rollers may be dirty.	Clean the rollers using the cleaning card two or three times. Print a Windows test page card between each cleaning (see <i>Performing a cleaning cycle</i> in Chapter 3).
	The cards may not meet specifications.	Obtain and use a different supply of cards (see <i>Card requirements</i> in Appendix B).
Part of the printed image is streaked, smeared, or discolored	Cards may be dirty or may have been mishandled.	Obtain and use a different supply of cards (see <i>Card requirements</i> in Appendix B).
	The rollers may be dirty.	Clean the rollers using the cleaning card two or three times. Print a Windows test page card between each cleaning (see <i>Performing a cleaning cycle</i> in Chapter 3).

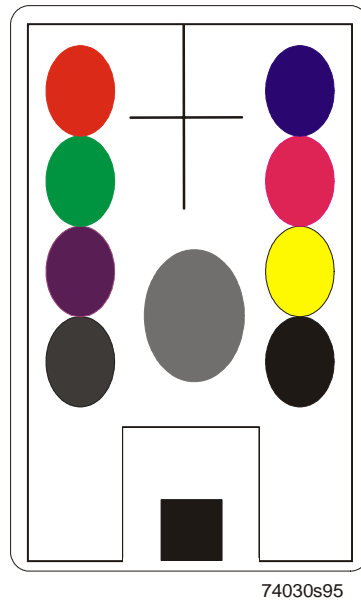


Figure 4:-3 Expanded test card

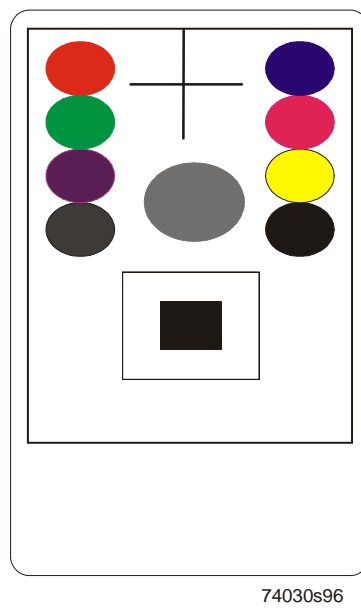


Figure 4:-4 Compressed test card

Remove torn or jammed ribbon

i Do not place the ribbon cartridge on a dirty surface, such as a table top, floor, or chair. Particles from such a surface may stick to the ribbon and damage the printhead in the printhead cartridge.

1. Lift open the top cover.
2. Press down on the swing arm. The push latch will release the swing arm. Lift the swing arm until it is fully open.
3. Grasp the ribbon cartridge handle, and lift up to remove the ribbon cartridge (see Figure 4:-5).
4. Work any jammed part of the ribbon free from the printer.
5. Wind the ribbon off the supply ribbon core and onto the take-up ribbon core until the damaged section of the ribbon is completely rolled onto the take-up ribbon core.

If the supply ribbon core is almost empty, discard it and slide the new supply ribbon and ribbon core onto the right ribbon cartridge shaft (see Figure 4:-7).

6. Place the ribbon cartridge onto the ribbon cartridge supports, and press down until it clicks into place (see Figure 4:-7).
7. Close the swing arm, pressing it down until the push latch clicks into place.
8. Close the top cover.
9. Resume printing.

i If the problem persists, contact your DataCard-authorized service provider for assistance.



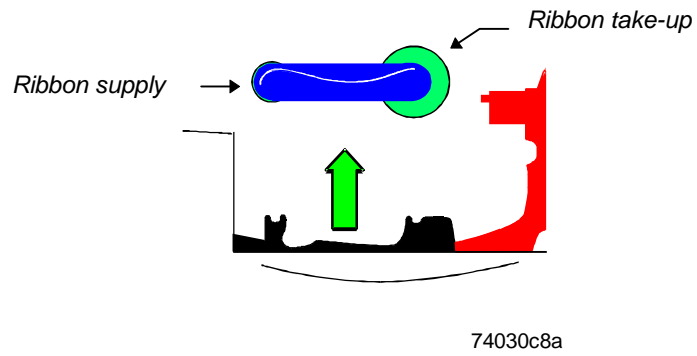


Figure 4:-5 Remove the ribbon cartridge

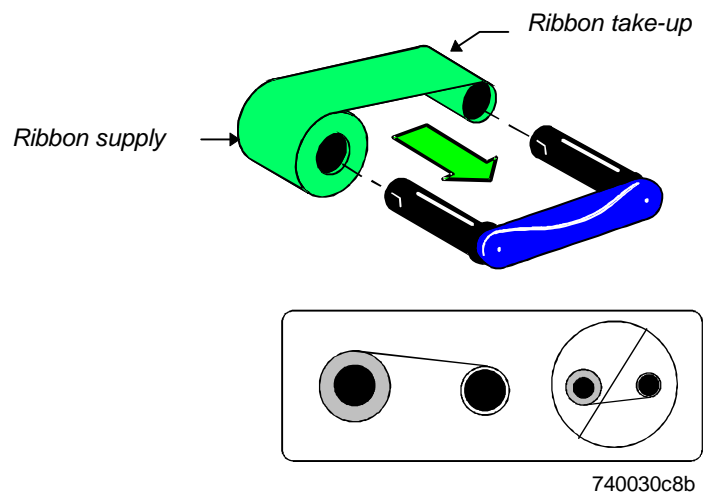


Figure 4:-6 Replace ribbon on the ribbon cartridge

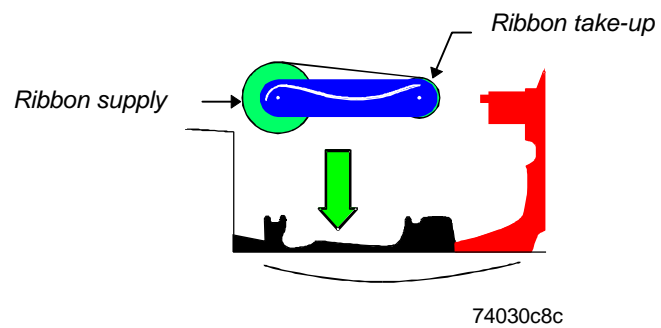


Figure 4:-7 Replace the ribbon cartridge

Remove jammed cards



In this procedure, you may have to remove the ribbon cartridge. When you do this, do not place it on a dirty surface, such as a table top, floor, or chair. Particles from such a surface may stick to the ribbon and damage the printhead.

1. *ImageCard S2 and UltraGrafix S2 printers only:* Open the duplex module cover (see Figure 4:-8) and look for a jammed card in the duplex module. If you find one, there should be a message on your screen. Click on the message's Help button and use the message help to solve the problem. Skip the rest of this procedure.
2. Lift open the top cover.
3. Press down on the swing arm. The push latch will release the swing arm. Lift the swing arm until it is fully open.
4. Grasp the ribbon cartridge handle, and lift up to remove the ribbon cartridge.
5. Turn the manual card feed knob to move the card along the card transport track until you can remove it (see Figure 4:-9).
6. Remove all cards from the card transport track.
7. Place the ribbon cartridge onto the ribbon cartridge supports, and press down until it clicks into place.
8. Close the swing arm, pressing it down until the push latch clicks into place.
9. Close the top cover.
10. Resume printing.



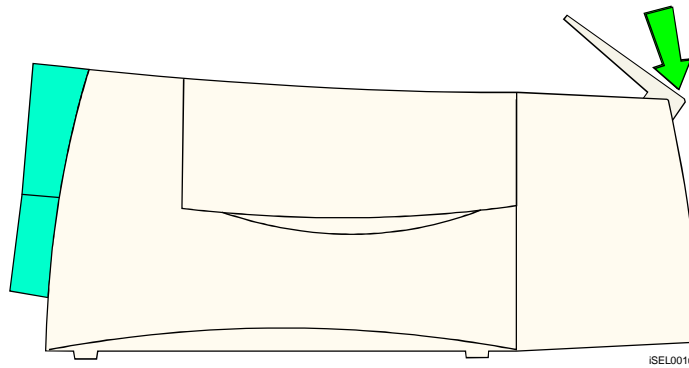


Figure 4-8 Opening the duplex module cover

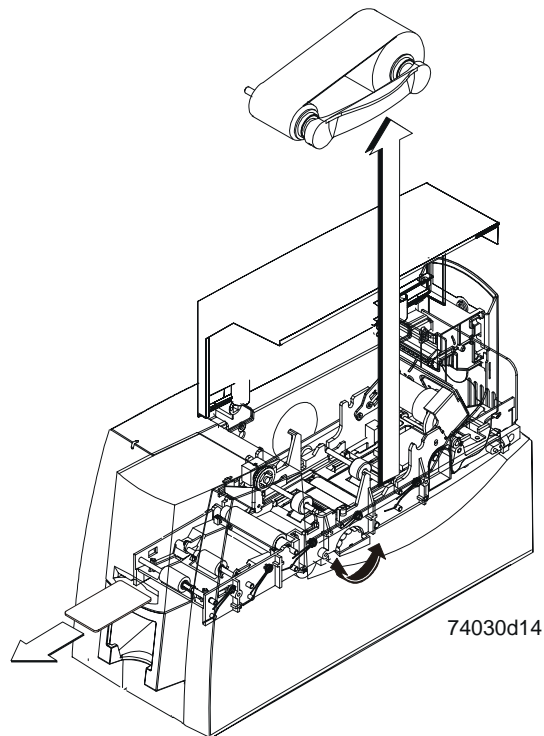


Figure 4-9 Remove a card jammed on the card transport track

Making repairs and obtaining service

For repair assistance, contact your DataCard-authorized service provider. Before contacting the representative, get the serial number for your printer. It is located on a sticker shown in Figure 4:-10.

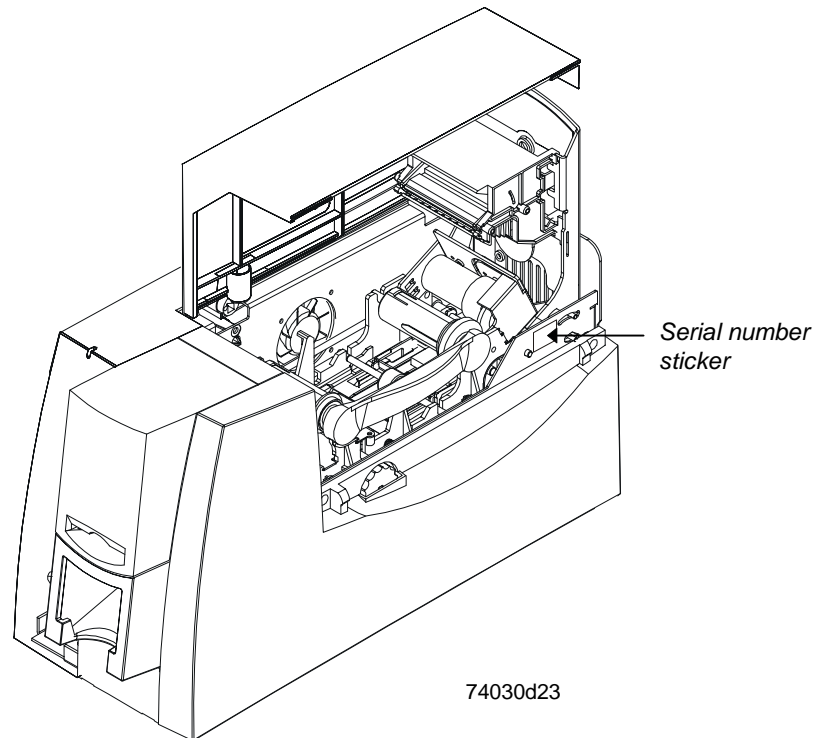


Figure 4:-10 Location of serial number on printer (Express and S models shown)

When you contact your DataCard-authorized service provider, you may be asked to access the printer's diagnostics for help in solving problems with the printer.

- i** You cannot print personalized cards on the printer while you are using its diagnostics.

Chapter 5: Advanced information

5

This chapter contains advanced information on working with the ImageCard or UltraGrafix photo ID printer and its driver. To perform the procedures in this chapter, you should know how to use the printer to print cards.

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Confirming the ECP parallel port configuration and assignment

For optimal performance, the printer should be connected to an ECP parallel port. ECP stands for extended capabilities port. It differs from a "standard" parallel port in that it enables two-way (bi-directional) communication between the PC and the printer. It is also capable of much faster data transfer depending on the particular communication method being used.

This ECP communication method is compatible with Windows and conforms to the IEEE 1284 standard, an industry specification that deals with standard signaling methods for bi-directional communication. The cable provided with the printer also conforms to the 1284 standard (specifically, the hardware requirement of this standard).

Verify the ECP parallel port assignment — Windows query (Windows 95/98 only)

- i** This procedure does not apply to Windows NT. If you use Windows NT, see *Verify the ECP parallel port configuration — system query* on page 5-4.
1. Select Settings and then Control Panel from the Windows Start menu. The Control Panel dialog box appears.
 2. Double-click on the System icon. The System Properties dialog box appears.
 3. Select the Device Manager tab.
 4. Click on the View devices by type option.
 5. Double-click on Ports (COM & LPT) to show the available ports. An ECP parallel port should be included in this list. If it is not, attempt to change the port setting to ECP. If you cannot change the port setting to ECP, see the following procedure on verifying the ECP parallel port configuration.



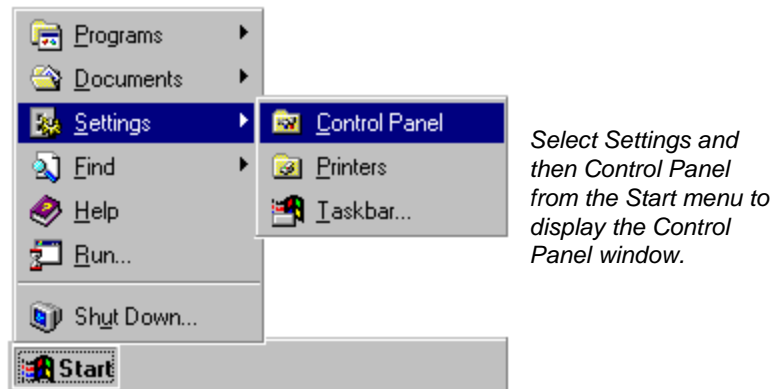


Figure 5-1 Display the Control Panel dialog box

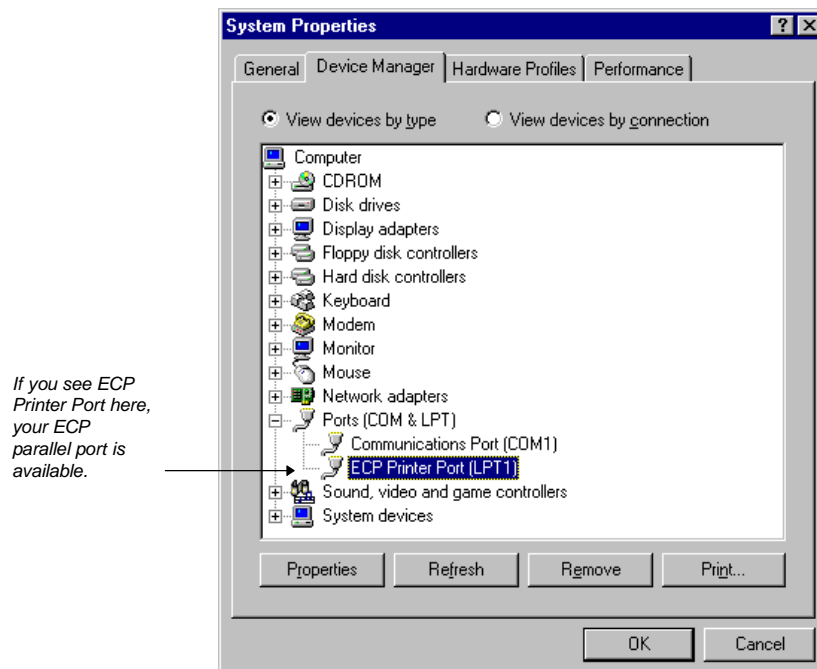


Figure 5-2 View the available ports

Verify the ECP parallel port configuration — system query

1. Close all open applications.
2. Reboot the PC.
3. Enter the PC BIOS setup program following the instructions that display early in the reboot sequence (or see the documentation that came with your PC for information on entering this program).
4. In the PC BIOS setup program, check to see that the parallel port mode is set to ECP. If it is not, set it to ECP.
5. Exit the PC BIOS setup program, following the instructions on the screen.

i If you cannot change the parallel port mode to ECP in the PC BIOS setup program, call your DataCard-authorized service provider for assistance.



Re-installing the printer driver

You can get the most current copy of the printer driver from DataCard's Internet Web site (**www.datacard.com**) or from your DataCard-authorized service provider.

When you re-install the printer driver, be sure to read the installed read-me file for information on the latest changes and for any new installation instructions.

Re-install the printer driver in Windows 95/98

- i** The following procedure applies only to Windows 95/98. If you are using Windows NT, see *Re-install the printer driver in Windows NT* on page 5-7.
- i** If you make use of user profiles, do one of the following to allow all users to access the printer:
 - Install the printer before setting up user profiles.
 - If user profiles are set up already, view the user profiles tab of the Passwords Properties dialog box. Make sure "Include Start Menu and Program groups in user settings" is *not* selected while you are installing the printer.
- 1. Look in the Windows Start menu for an ImageCard/UltraGrafix icon. (See your Windows documentation for instructions.) If there is an ImageCard/UltraGrafix icon, delete it.
- 2. Close all applications. Do not close Windows.
- 3. Select Settings and then Printers from the Windows 95/98 Start menu. The Printers dialog box appears.
- 4. In the Printers dialog box, click once on the printer icon to select it. The icon has the name chosen during printer driver installation.
- 5. Press the Delete key.
 - i** If a message appears at this point asking if you want to restart the computer, select Yes and skip to step 7 below.
- 6. When the confirmation prompt appears, select Yes to delete the printer driver.
- 7. Close the Printers dialog box and all open applications.

8. Restart the PC by selecting Shut Down from the Windows 95/98 Start menu, then selecting Restart the computer and clicking Yes.
9. If the printer driver you want to install is on diskettes, insert the first diskette into the disk drive of the PC to which the printer is connected after the PC and Windows 95/98 have restarted.
10. Select Settings and then Printers from the Windows 95/98 Start menu. The Printers dialog box appears.
11. Double-click on the Add Printer icon.
12. Follow the instructions on your screen and the guidelines below to complete the installation.
 - Select the Have Disk button when it appears. Insert diskette 1 at this point and click OK. Click Next to begin installation. Remove diskette 1 and insert diskette 2 when prompted.
 - When you are updating, select the **"Replace existing driver"** choice in the Add Printer wizard, and not the recommended "Keep existing driver" choice.
 - When the Printer Name box appears, change the printer name to match the name on the front of your printer. For example, you might change "DataCard Select Class" to "ImageCard S2" or "UltraGrafix S". Do not use the <>:"/\ and | characters in the name.
 - If you are attaching two ImageCard/UltraGrafix series printers (Express, S or S2 models) to the same PC, Windows 95/98 will add the copy number to the name of each printer driver. See *Installing a second printer (Windows 95/98 only)* on page 5-11 for more information on installing two printers.
 - Remove the diskette and insert the next diskette when prompted.
 - The Version conflict dialog might display as files are copied. Select Yes to keep the existing files on your PC.
 - The Code Page Mismatch dialog might display as files are copied. Select Yes to keep the existing files on your PC.
 - If you downloaded the driver from the Internet, you can delete the folder and the disk1 and disk2 folders from your hard drive after installing the printer driver. You also can delete the downloaded file.
13. If you used diskettes to install the printer driver, remove the diskette after the printer driver is installed.
14. If you see messages instructing you to restart Windows 95/98 or to update the printer firmware, follow them.



- i** If the installation procedure does not finish without error and you want to remove the DataCard files installed, use Windows Explorer to go to the **c:\windows\system** directory and delete all **dcci*.dll** files.

Re-install the printer driver in Windows NT

- i** The following procedure applies only to Windows NT. If you are using Windows 95/98, see *Re-install the printer driver in Windows 95/98* on page 5-5.
- i** To use the driver with Windows NT, your PC must run Windows NT 4.0 with Service Pack 3 or higher. The printer driver is not supported for PCs with Alpha, MIPS, or PowerPC processors.
- i** Make sure all print jobs from DataCard printers have been printed or have been deleted from the print spooler before removing the existing printer driver.
1. Look in the Windows Start menu for an ImageCard/UltraGrafix icon. (See your Windows documentation for instructions.) If there is an ImageCard/UltraGrafix icon, delete it.
 2. Select Settings and then Printers from the Windows NT Start menu.
 3. In the Printers dialog box, click once on the printer icon to select it. The icon has the name entered when the printer driver was installed.
 4. Press the Delete key.
 5. When the confirmation prompt appears, select Yes to delete the existing version printer driver.
 6. Close the Printers window and close all applications.
 7. Remove the status monitor from the startup group.
 - Right-click the Start menu button. Select Open All Users from the pop-up menu.
 - From the Start Menu list, open the Programs list.
 - From the Programs list, open the Startup list.
 - From the Startup list, select the printer you are removing.
 - Press the Delete key to delete the printer from the Startup group.
 - Close windows as needed.
 8. Close all applications and restart the PC and Windows NT.
 9. When Windows NT restarts, log in as the administrator.
 10. Close all open applications. Do not close Windows NT.
 11. Select Settings and then Printers from the Windows NT Start menu.

12. In the Printers dialog box, double-click on the Add Printer icon. (Only the administrator can use this icon to install the printer on the PC.)
13. Follow the instructions on your screen and the guidelines below to complete the installation.
 - Select the "My computer" choice, not the "Network" choice. If the "My computer" choice is not available, make sure you have logged on as the administrator.
 - Select the port to which you have connected the printer.
 - Do not select the "Enable printer pooling" choice when installing the printer driver.
 - When the Manufacturers list appears, insert driver diskette 1 and select the Have Disk button. If needed, select the Browse button to specify the location of the printer driver diskette.
 - When the Printer Name box appears, change the printer name to match the name on the front of your printer. For example, you might change "DataCard Select Class" to "ImageCard S2" or "UltraGrafix S".
 - When you make changes to the printer driver name, do not use the <>:"/\ and | characters. The PC will not be able to enable the driver if you use those characters.
 - Printer sharing is not supported by the printer driver for Windows NT 4.0.
 - If you are updating the driver, select the **"Replace existing driver"** choice in the Add Printer wizard (not the Windows NT-recommended "Keep existing driver" choice).
 - Do not print a test page as part of the installation. You must select the ribbon type before printing a test page, as explained below.
 - Remove the current diskette and insert the next diskette when prompted.
 - A Version Conflict dialog box might appear during the installation. If so, select Yes to keep the existing files on your PC.
14. Remove the diskette and restart Windows NT when prompted after the printer driver is installed.

Note: If you earlier asked to print a test page, test page messages might appear at the same time as the prompt to restart Windows NT. Even if the test page does not print, select "Yes" when the message appears. Restart Windows NT and continue to follow this procedure.

15. When the PC restarts, log in as the administrator again.
16. Follow instructions to update the printer firmware if prompted.

17. If the PC attached to the printer has other users, set user permissions to support printing or to prevent access to the printer. To change access for other users, make sure you have restarted Windows NT and then do the following steps.

a) From the Windows NT task bar, select Start, then Settings, and then Printers. The Printers dialog box appears.

b) Highlight the printer driver icon by clicking on it once. The printer driver icon has the name you entered when installing the printer driver.

c) From the menu bar, select File and then Properties. The printer's Properties dialog box appears.

d) Select the Security tab.

e) Click the Permissions button to open the Printer Permissions dialog box.

f) For users or groups listed in the Printer Permissions dialog box, select the type of access for each user or group.

g) Select the Add button to open the Add Users and Groups dialog box.

h) Select the Show Users button.

i) Select the name of the user (or group) whose access you want to set and click the Add button.

j) From the Type of Access list, select the access. For users who should not print to the printer, select No Access. For users who will use the printer, select Full Control. These users will have the same access level as the administrator. They will be able to see all messages, and perform other actions, such as deleting the printer driver. (Messages inform users when they need to change the ribbon, load cards, and fix problems.)

k) Repeat steps *g* to *j* to add other users or groups.

l) Select OK to save the changes and close the Add Users and Groups dialog box.

m) Select OK to save the changes and close the Printer Permissions dialog box. You can leave the Properties and Printers windows open.

n) Follow instructions to update the printer firmware if prompted.

18. Select the correct value for the following document default settings to enable printer features. These items are in the Default Document Properties dialog box. See *Using the default document properties dialog box (Windows NT only)* in Chapter 3 to find out how to open this window.

Be sure to set these items in the order listed:

- Printing on both sides (duplex printing)
- Duplex method (automatic or manual)
- Ribbon type
- Other values based on your card design

19. Print a test page from the PC to verify that the driver is installed correctly.

a) With the printer Properties dialog box open, select the General tab.

b) Make sure the printer is connected to the parallel port and is powered on.

c) Click the Print Test Page button. Windows NT prepares a test page and the driver sends part of it to the printer.

d) If the card prints, you have successfully re-installed the printer driver.



- i** If you downloaded the driver from the Internet, you can now delete the folder and the disk1 and disk2 folders from your hard drive after installing the driver. You can also delete the downloaded file.
- i** If the installation procedure does not finish without error and you want to remove the DataCard files installed, use Windows Explorer to go to the **c:\windows\system** directory and delete all **dcci*.dll** files.
- i** The printer settings just made in the driver controls can be overridden by your card-printing application.

Installing a second printer (Windows 95/98 only)

On a PC running Windows 95 or Windows 98, you can connect two ImageCard/UltraGrafix printers (Express, S and S2 models) to the same machine.

- i** *You cannot connect two ImageCard/UltraGrafix printers to a PC that runs Windows NT 4.0.*
- i** Look for a file called README.RTF on your installation diskettes for important information on which types of printers can be connected to the same PC.

The current version of the printer driver requires that you follow these additional guidelines to install the second printer driver.

- If you plan to connect two ImageCard or UltraGrafix printers to the same computer, keep in mind that each of them will require its own port. You will have to install the hardware for a second parallel port if the PC is not equipped with two of them.
- Exit the status monitor before installing the second driver. To do this, right-click the icon for the printer and then select Exit from the popup menu.
- After installing the driver for the first printer, install the driver for the second printer. Be sure to select the correct port for the second printer.
- The default name for the printer is "ImageCard Express." If you attach two ImageCard/UltraGrafix printers to the PC, Windows will add the copy number to the name.
- In the Add Printer wizard, select "**Replace existing driver**" (not the recommended "Keep existing driver" choice).
- i** If you have two printers installed, view the title bar of messages for the name of the printer to which the message applies.
- i** You can use the DataCard QuikWorks Printer Fanout Controller to print to multiple ImageCard/UltraGrafix series printers. This requires QuikWorks V 2.5 or higher software. Only QuikWorks V 2.5 or higher is compatible with the Printer Fanout Controller.

Configure the PC for a second printer

- i** The hardware settings must match the settings you choose in the Resources tab.
- 1. See the documentation that came with the port hardware to set the jumpers.
- 2. Right-click on the My Computer icon on the desktop and then select Properties from the popup menu.
- 3. Select the Device Manager tab.
- 4. Select View devices by type.
- 5. Click the + next to Ports (COM and LPT) to display the entry for LPT2.
- 6. Click the entry for LPT2 and select the Properties button to display the Properties dialog box.
- 7. Click the Resources tab.
 - If you are trying to use a DMA channel for the second printer, the Resource settings list should show Direct Memory Access and its channel setting.
 - The Conflicting device list should show No conflicts.

If the Resources tab does not show these settings, make sure Use automatic settings is not selected and change the Resources settings and Conflicting device lists.

- 8. Click OK twice to save the settings and close the Properties and the System Properties windows.



Replacing the printhead cartridge

The ImageCard/UltraGrafix series printers use an operator-replaceable printhead cartridge. To order a replacement printhead cartridge, contact your DataCard-authorized service provider. For more information on the cartridge, including its part numbers, see *Printhead cartridge* in Appendix B.

Replace the printhead cartridge



Do not touch the printing edge of the printhead in the printhead cartridge. If you do, clean it with isopropyl alcohol and a lint-free cloth. (See *Printhead cartridge* in Appendix B to learn where this edge is.)

1. Power off the printer.
2. Lift open the top cover.
3. Push down on the swing arm. The push latch will release the swing arm. Lift the swing arm up until it is fully open.
4. Press the printhead cartridge latch lever down and lift the printhead cartridge up and off the swing arm (see Figure 5:-3 and Figure 5:-4).
5. Detach the printhead cable from the printhead cartridge (see Figure 5:-5).
6. Attach the printhead cable to the new printhead cartridge (see Figure 5:-5 and Figure 5:-6).
7. Slide the new printhead cartridge onto the swing arm so that the printhead cartridge pins slide into the printhead cartridge slots on the swing arm (see Figure 5:-5).
8. While holding the printhead cartridge latch lever down, press the printhead cartridge toward the swing arm. Be sure that the tabs on the back of the printhead cartridge fit into the notches on the swing arm spring bar securely (see Figure 5:-5 and Figure 5:-7). Release the latch lever when the printhead cartridge is in place.
9. Close the swing arm, pressing it down until the push latch clicks into place.
10. Gently pull the excess printhead cartridge cable out of the rear of the swing arm.
11. Close the top cover.
12. Power on the printer.

5-14 Advanced information

13. Print a Windows test page card to verify that the printhead cartridge is installed properly. (See *Printing test cards* in Chapter 2 for more information.)

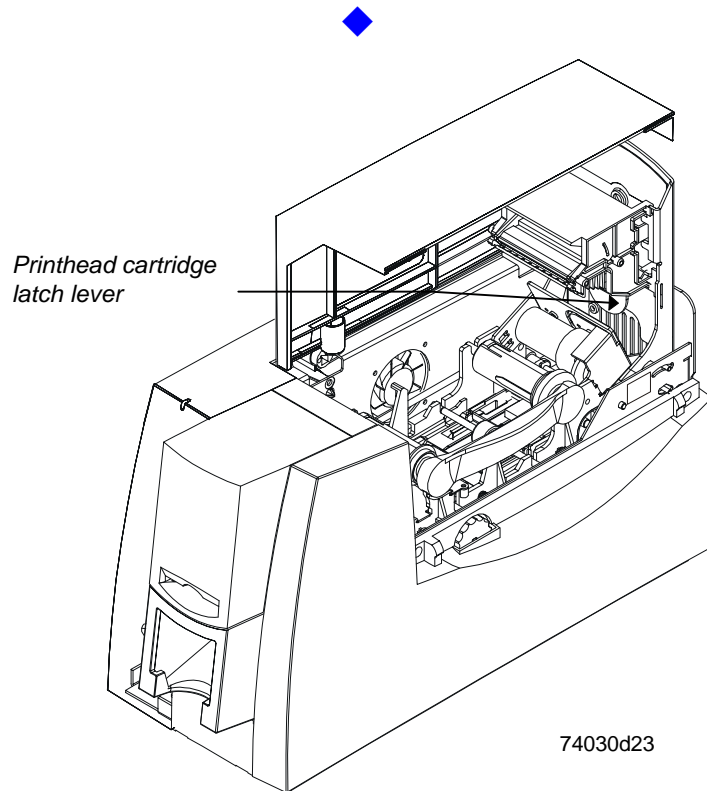


Figure 5:-3: Printhead cartridge latch lever

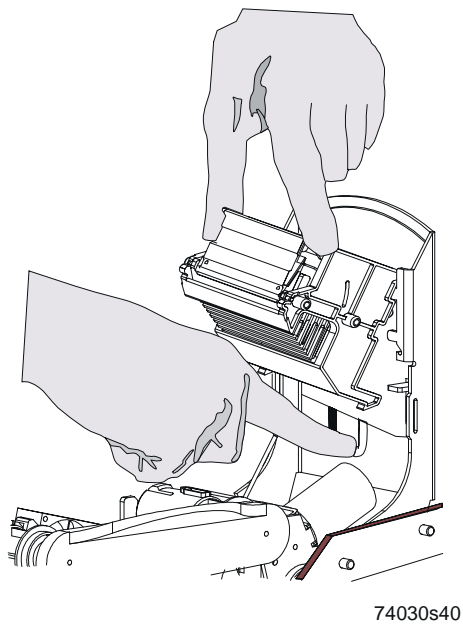


Figure 5:-4 Release the printhead cartridge

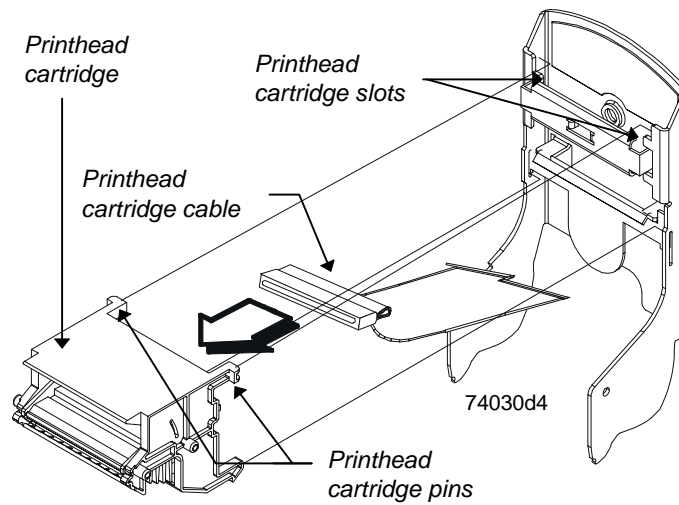


Figure 5:-5 Printhead cartridge and related components (Express and S models shown)

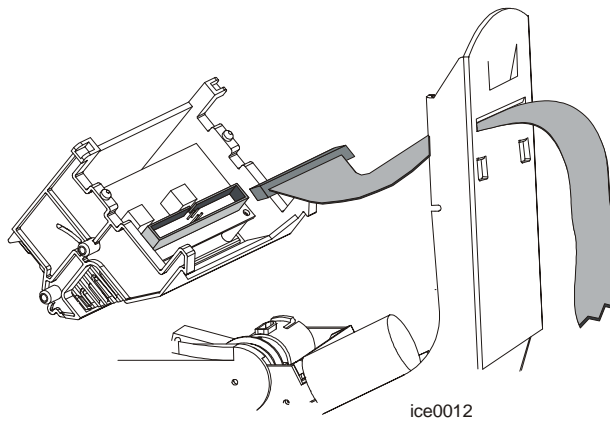


Figure 5:-6 Attach and detach the printhead cable

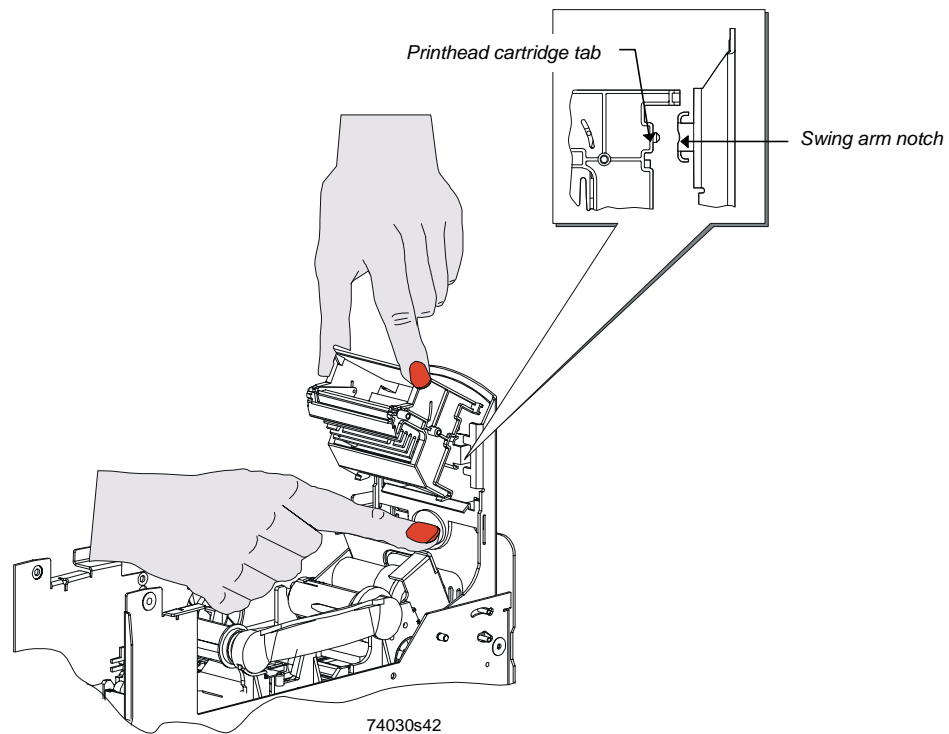


Figure 5:-7 Replace the printhead cartridge

Printing on both sides of a card

ImageCard S2 and UltraGrafix S2 printers support automatic duplex (double-sided) printing. If you have one of these models, the automatic double-sided printing is the most effective and reliable method for duplex printing.

If you have an ImageCard/UltraGrafix Express or S printer, the way to print on both sides is to manually remove the card from the card output stacker when the first side is finished, turn it over and re-insert it into the exception slot. Flip the card as shown in Figure 5:-8. *Be very careful to touch only the edge of the card when doing this.*

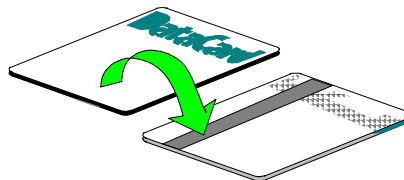


Figure 5:-8: Flipping over a card manually

Whether you will have automatic or manual duplex printing, keep data on one page if you want to print on just the front of the card. For a two-sided card, send a two-page document and enable a setting in the printer driver Properties dialog box to print on both sides:

- *Windows 95/98 users:* Select Settings and then Printers from the Windows 95/98 Start menu. Select the printer. (The icon has the name chosen during printer driver installation.) Then choose File and Properties. The printer's Properties dialog box opens. Click on the Card tab and then select "Enable printing on two sides." Click OK to close the Properties dialog box.
- *Windows NT users:* Select Settings and then Printers from the Windows NT Start menu. Select the printer. (The icon has the name chosen during printer driver installation.) Then choose File and Document Defaults. Click on the Advanced tab if necessary, and then set Print on Both Sides (Duplex Printing) to Long Side. Set Duplex Method to manual or automatic, and then choose a ribbon type. Click OK to close the Default Document Properties dialog box.

i Always test your card design to make sure it works properly before you put it into production.

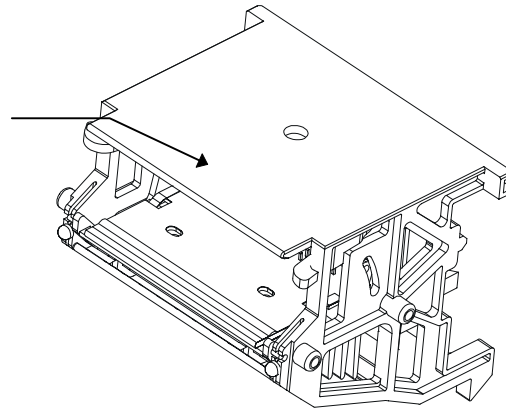
Printing on thick cards

The printers in the ImageCard/UltraGrafix line normally print on plastic cards that are 0.030" thick, but you can configure them to print cards as thick as 0.050". (If you want to encode data on smart card chips, however, you cannot use cards thicker than 0.030".) These are the steps to setting up the printer for thick cards:

- If your printer does not already have one, order and install a printhead cartridge for thick cards. The cartridge you need depends on whether you want to print in full color or in *monochrome* (using one color only). You can tell which type of cartridge is already in your printer by looking for a special sticker on the existing cartridge, as shown in Figure 5:-9.

Type of printing to do on thick cards	Description of sticker on required cartridge	Printhead cartridge part number needed
Color	Green dot	557656-001
Monochrome	Picture of a 3-color ribbon	557655-001

A sticker on this surface indicates the type of printhead cartridge.



ice0006

Figure 5:-9 Printhead cartridge and sticker

- Use the user diagnostics portion of the driver's status monitor to alter the printing voltages. (To learn how to open the status monitor, please see *Using the status monitor* in Chapter 3.) You will need to experiment by repeatedly changing voltages, printing a test card, and evaluating the resulting print quality, until you are satisfied with the quality. For help with this, contact your authorized service provider.

Printing bar codes

If you want to have bar codes on your cards, test them for readability using a scanner.

- Print a test card with your bar code and test it on your bar code reader.
- Use ribbon that includes a K panel (true black) for bar codes that must be read by an infrared scanner. Only visible light sensors can read bar codes that are printed using three-panel ribbon (ribbon that does not include a K or true black panel).

Moving the printer from Windows 95/98 to NT

If you want to take an ImageCard/UltraGrafix printer connected to a Windows 95/98 PC and connect it to a PC running Windows NT, do so carefully. The Windows 95/98 printer driver can control settings inside the printer that are not available using the Windows NT 4.0 driver. If you have used an ImageCard or UltraGrafix printer with a PC running Windows 95/98, you must make sure that the ribbon type is set to Autodetect (using the Windows 95 driver) before moving the printer to a PC running Windows NT 4.0. Follow this procedure:

1. Open the Windows 95/98 printer Properties dialog box. To do this, first select Start, then Settings, and then Printers. Click once on the printer icon to select it, and Select File and then Properties. (The printer icon has the name chosen during printer driver installation.)
2. On the Graphics tab, make sure that "Always auto-detect ribbon type" is selected, and click the Apply button to send the value to the printer.
3. Click OK to close the Properties dialog box.

Encoding magnetic stripe data from an application



The printer allows you to encode magnetic stripe data on cards using many applications. If you use a DataCard QuikWorks product or a card-printing application from a DataCard reseller, see the user information for your application to find out how. If you use another application, follow the guidelines below to encode magnetic stripe data. This section describes how to encode magnetic stripe data in a general application not geared toward card printing, such as Microsoft Word.

Make sure that you use an application in which you can save the text to encode and edit the text again.

- i** The printer driver for Windows NT does not support the magnetic stripe encoding method of formatting data in special magnetic stripe fonts. To encode magnetic stripe data in NT, use an application with magnetic stripe encoding via the DataCard application programming interface (API).

- i** With any application, test your card design to make sure you get the results you expect.
- i** Whenever you are encoding magnetic stripe data or programming smart cards, some cards may not be printed completely. Be sure to process incomplete cards according to your policy for handling the confidential data that might be on the card.

Follow this procedure to encode magnetic stripe data in a general-purpose Windows 95/98 application:

1. Select the encoding format and topcoat pattern.
 - a)* From the Windows 95/98 Start menu, select Settings and then select Printers.
 - b)* Select the printer icon. (The icon has the name chosen during printer driver installation.) Choose File and then Properties. The printer's Properties dialog box opens.
 - c)* In each tab, select the settings that apply to your application and card design, and then click Apply to accept the settings you selected.
 - d)* In the Mag Stripe Settings tab, select the encoding format and coercivity. The encoding format you select corresponds to the fonts that you apply. To find out which characters are allowed for a format, click the question mark  and then click the selected encoding format.
 - e)* Set the pattern for protective topcoat in the Top coat pattern area. You generally would not want to apply topcoat to a magnetic stripe.
 - f)* Click OK to accept the settings you selected and close the Properties dialog box.
2. In the application, select the ImageCard/UltraGrafix printer as the current printer.
3. Using the application's page setup feature, set the paper size to CR80 Card 2.13" x 3.38" and set all the margins to 0.1". Select the orientation for the card design—either portrait or landscape.
4. Format the text to print using a TrueType () font.
5. Follow these general guidelines:
 - On the front of the card, enter the information to be encoded on the magnetic stripe and format the text using one of the following fonts:

- Each time you start using Japanese-language characters, or stop using them, the driver adds a hidden character. Each hidden character reduces, by one, the number of characters you can encode.
- Spaces between characters can be Japanese-language spaces or English-language spaces. Make sure that spaces are in the same language as the surrounding characters.
- If you need to encode Kanji characters, please contact your DataCard Japan representative for more information.
- When the printer driver is installed and the ImageCard/UltraGrafix printer is the selected printer, the Track NTT--Magnetic Stripe font appears in the font list. This font encodes all the supported characters in the font only from a PC running Japanese Windows. PCs running other-language versions of Windows do not have Japanese-language characters available.

Printing over a network (Windows 95/98 only)

i *This section does not apply to Windows NT users. The printer driver for Windows NT does not support printing over a network.*

If you are using Windows 95/98, you can use the printer with Microsoft File and Print Sharing so that more than one PC can send card data to the printer. This feature is not fully supported, however.

- To install the printer with Microsoft File and Print Sharing, do the following:
 1. Install the printer driver on the PC to which the printer is attached.
 2. See Windows help for information on enabling file and printer sharing. Select the "I want to be able to allow others to print to my printer(s)." choice.
 3. See Windows help for information on sharing your printer with other people. Select "Shared As" and provide a share name and a comment or password, if desired.
 4. On the network-connected PC, install the printer as a network printer.
 5. After installing the printer and before sending any card data from the network-connected PC, use the Graphics tab of the Printer Properties dialog box to uncheck "Always auto-detect ribbon type" and then select the ribbon type. (The ribbon type must match the ribbon installed in the printer.) Set the ribbon type at the PC connected to the printer and at each remote PC printing over the network.

- When you use the printer with a network-connected PC, be aware of the following:
 - ◆ Look at the printer Properties dialog box for the PC with the printer directly attached to see current printer values. Also look at that PC for printer messages. The network-connected PC (the one without the printer directly connected) does not display messages or show current printer values.
 - ◆ Smart card data cannot be sent from the network-connected PC to the printer.
 - ◆ Your application might support features from the network-connected PC that are not directly supported by the printer driver.
 - ◆ IAT high-coercivity encoding is the only encoding format supported for printing with a network-connected PC.
 - ◆ To change the settings on a network-connected PC, follow the steps in *Using the printer properties dialog box* (Chapter 3) to go to the printer Properties window. *Do not change settings from within an application!*

Security key issues

The card creation application you use might require a security key on the parallel port. You might receive "security key not found" messages or "parallel port data error" messages, or you might notice that the card creation application slows. If this happens, do one of the following:

- Put the security key on a different parallel port, if available. The security key can be on a compatible-mode (IBM AT-mode) port. The interface cable should remain on the ECP parallel port (usually LPT1).

OR

- Keep the security key on the ECP port with the interface cable attached. Find the configuration utility for the security key in the folder for the card creation application. See the information for the application that uses the security key for recommended settings.

Other tips, hints and information

Some other things to keep in mind about using the printer:

- Whenever you are encoding magnetic stripe data or programming smart cards, some cards may not be printed completely. Be sure to process

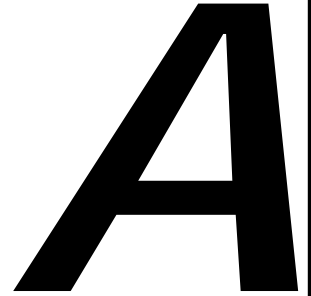
incomplete cards according to your policy for handling the confidential data that might be on the card.

- The printer is installed with a default spool setting of "Spool printing so program finishes printing faster." Use this setting, not "Print directly to printer." The default setting is required to print multiple copies of the same card, print two-sided cards, and enable the Retry button in messages boxes on the PC. You can find this setting by opening the printer Properties dialog box (see Chapter 3). *In Windows 95/98*, select the Details tab and click on the Spool Settings button. *In Windows NT*, click on the Scheduling tab.
- Be sure to look at a file called README.RTF for more information on using and working with the printer. This file is on disk 1 of the driver installation diskettes.

Writing software for ImageCard/UltraGrafix series printers

To create software that works with an ImageCard/UltraGrafix series printer, you can order DataCard Raster Printer Application Programming Interface (API). This kit contains a manual on customizing software to work with the printer, which includes sample code, libraries, and the *DataCard Software Developer's Manual for Desktop Raster Printers* (part number 526720-002). This is an electronic document that you can view with the Adobe Acrobat™ reader.

Appendix A: Safety and compliance



This appendix contains regulatory compliance information, safety information, and trademark acknowledgments for the ImageCard or UltraGrafix photo ID printer.

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Emissions

FCC notice (USA)

This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance with this instruction manual, it may interfere with radio communications. This equipment has been tested and found to be within the limits for Class A computing devices, pursuant to Subpart J of Part 15 of FCC rules, designed to provide reasonable protection against radio interference in a commercial environment. Operation of this equipment in a residential environment may possibly cause interference. In the event of interference, the user, at his/her own expense, will be required to take whatever measures are necessary to correct the problem.

Canada

This digital apparatus does not exceed the Class A limits for radio noise for digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

Europe

We hereby certify that this equipment complies with the Class A limits of EN55022 and the Immunity requirements of EN50082-1, IEC 801-2, 801-3, 801-4.

Liability statement

This DataCard product has been built to the high standards of DataCard Corporation. Please note and heed the WARNING and CAUTION labels that have been placed on the equipment for your safety. Please do not attempt to operate or repair this equipment without adequate training. Any use, operation or repair in contravention of this document is at your own risk. By

acceptance of this system you hereby assume all liability consequent to your use or misuse of this equipment. DataCard Corporation assumes no liability for incidental, special or consequential damage of any kind. Equipment specifications, applications and options are subject to change at the sole discretion of DataCard Corporation without notice.

Proprietary notice

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Safety

All DataCard products are built to strict safety and reliability specifications in accordance with Underwriters Laboratories Inc. and Canadian Standards Association requirements. Therefore, safety issues pertaining to operation and repair of DataCard equipment are primarily environmental and human interface.

The following basic safety tips are given to ensure safe installation, operation and maintenance of DataCard equipment and are not to be considered as comprehensive on all matters of safety.

Safe environment

- Connect equipment to a grounded facility power source. Do not defeat or bypass the ground lead.
- Place the equipment on a stable surface (table or floor), and ensure floors in the work area are dry and non-slip. Insulated rubber floor mats are preferred.
- Know the location of equipment branch circuit interrupters or circuit breakers and how to turn them on and off in case of emergency.
- Know the location of fire extinguishers and how to use them. Only ABC type extinguishers may be used on electrical fires.
- Know local procedures for first aid and emergency assistance at the customer facility.
- Use adequate lighting at the equipment.
- Maintain the recommended range of temperature and humidity in the equipment area.

Safe human interface

- Use proper lifting techniques when moving or installing the equipment.
- Use standard moving parts safety procedures when working on equipment with parts in motion or potential motion.
- Obtain specific certified training before working on any piece of equipment.
- Keep safety interlocks on covers or panels functioning.
- Disconnect the equipment from facility power when performing procedures which require no power input.

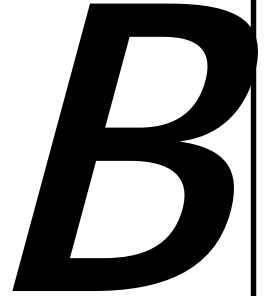
Acknowledgments

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Windows, Windows 95, Windows 98, Windows NT, and WordPad are trademarks or registered trademarks of Microsoft Corporation.

All other product names are trademarks of their respective owners.

Appendix B: Supplies



This appendix shows the various supplies used with an ImageCard or UltraGrafix photo ID printers. It also has ordering information.

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List of supplies

Contact your DataCard-authorized service provider for information on ordering any of these supplies.

- Cards (CR80 type)
- Ribbon
- Cleaning cards and cleaning supplies
- Printhead cartridges — see *Printhead cartridge* on page B-3 for information on ordering replacement printhead cartridges

You can also order the following items from your DataCard-authorized service provider:

- Extra ribbon cartridges
- Extra card cartridges
- Interface cables
- Power cables
- Power receptacle fuses
- Carrying cases (for some printer models)
- Publications
- Extended warranty

You can get additional or new copies of the printer driver by contacting your DataCard-authorized service provider or by visiting the DataCard Internet Web site (**www.datacard.com**).

- ❗ Before contacting your DataCard-authorized service provider to order supplies or parts, have your printer's serial number available. You can find this number on the bottom of the printer.

Card requirements

Card stock for printing should meet the following requirements.

Size: CR80, 3.375 in. (85.725 mm) x 2.125 in. (53.975 mm)

Type: PVC with glossy surface or composite with glossy PVC surface

Thickness:

- 0.020 in. (0.508 mm) to 0.050 in. (1.27 mm) plus or minus 10 percent, for regular or magnetic stripe cards when the smart card module is not installed
- 0.020 in. (0.508 mm) to 0.030 in. (0.762 mm) plus or minus 10 percent, for all cards when a smart card module is installed

i Card bow must be less than the thickness of the card (see Figure B:-1).

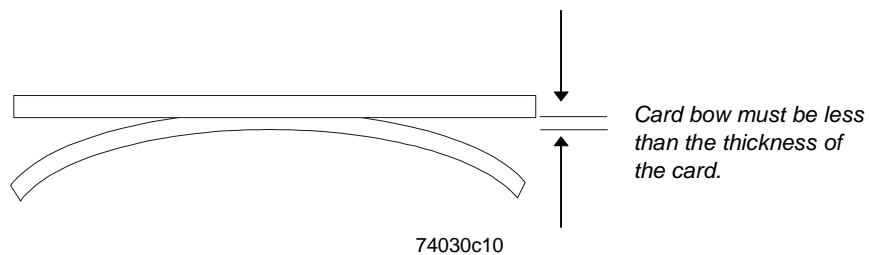


Figure B:-1 Card bow requirement

Printhead cartridge

There are three types of printhead cartridges. You can tell which type is in your printer by looking for a sticker on the cartridge, as shown below:

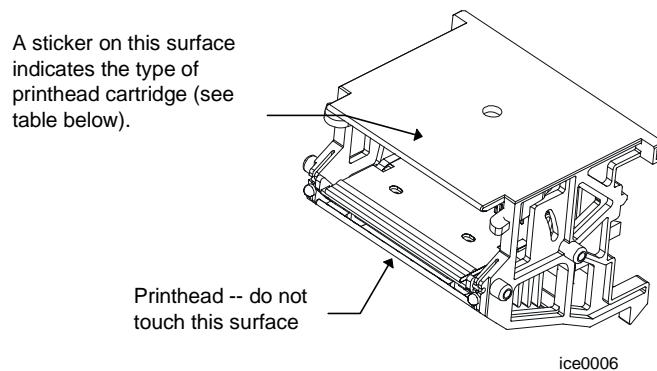


Figure B:-2 Printhead cartridge

The sticker is either a green dot or a decal that looks like either a color or monochrome ribbon. (Other stickers on this surface of the cartridge have bar codes or an illustration showing how to install the cartridge.) Use this table to determine the type of printhead cartridge in use:

Description of sticker	Type of printhead cartridge	Part number for re-ordering
Single-color ribbon	Standard cartridge for monochrome printing	557654-001
3-color ribbon	Standard cartridge for color printing	557655-001
Green dot	Standard cartridge for printing thick cards	557656-001

If you do not see any stickers matching these descriptions on that surface of the printhead cartridge, contact your authorized service provider for help.

i If you want to print on *thick cards* — cards thicker than the standard 0.030" thickness — disregard the table above and see *Printing on thick cards* in Chapter 5 for printhead cartridge information.

! Do not touch the printing edge of the printhead in the printhead cartridge. If you do, clean it with isopropyl alcohol and a lint-free cloth.

Ribbon

Order from among the following types of ribbons for the printer.

Name	Description	Part Number
<i>You can use the following color ribbons with ImageCard printers:</i>		
YMCKT	three colors, true black, and topcoat (a clear film that protects the printing on the card)	806124-104
YMCKTKT	three colors, true black, and topcoat on one side of the card; black and topcoat on the other side	806124-106
YMCT	three colors and topcoat	806124-105
YMCK	three colors and true black	806124-102
YMC	three colors	806124-101
<i>You can use the following ribbons with ImageCard or UltraGrafix printers:</i>		
KT	true black and topcoat	806124-109
K	true black	596230-001
Tonal black ribbon		597568-101
Red		596230-104
Process blue		596230-105
Green		596230-106
Silver		596230-107
Gold		596230-108

i If you change the type of ribbon you use, remember to make the appropriate changes in the printer driver. See *Reconfiguring the printer driver* in Chapter 3 for more information on this.

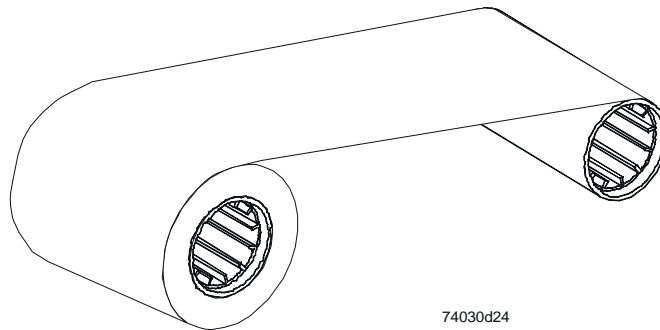


Figure B:-3 Print ribbon

Cleaning supplies

- Cleaning card (part number 557297-001)

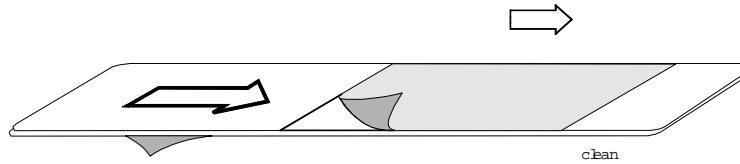


Figure B:-4 Cleaning card — side 1

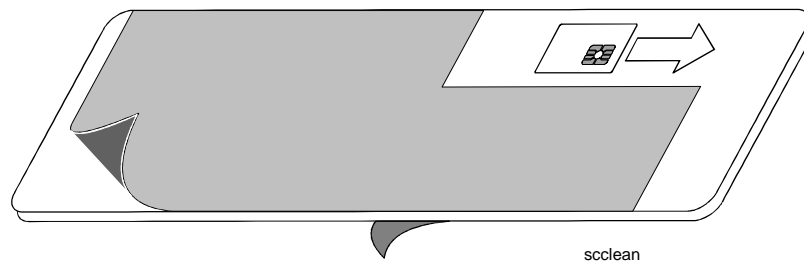


Figure B:-5 Cleaning card — side 2

- Magnetic stripe head cleaning card, if the printer has the magnetic stripe option (part number 590408-002)

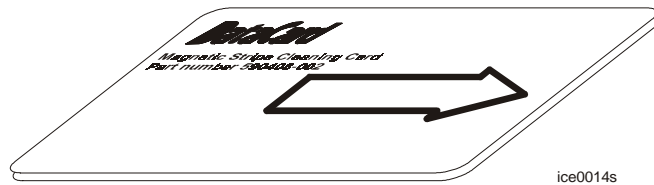


Figure B:-6 Magnetic stripe cleaning card

- Duplex cleaning card (part number 557668-001), if the printer has automatic two-sided printing

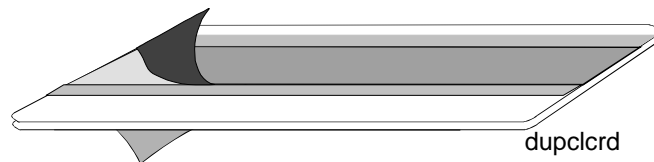


Figure B:-7 Duplex option cleaning card

- Isopropyl alcohol and a lint-free cloth for cleaning the printhead in the printhead cartridge

Ribbon cartridge

- Ribbon cartridge (part number 555545-999)

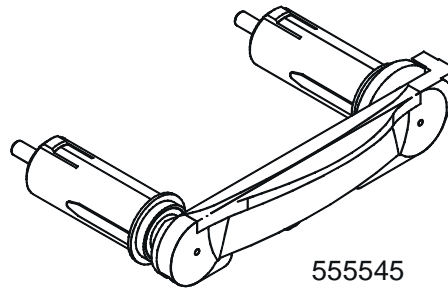


Figure B:-8 Ribbon cartridge

Card cartridge

- Card cartridge (part numbers appear in table below)

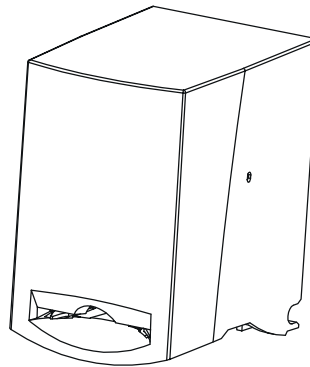


Figure B:-9 Card cartridge

Printer model	Cartridge color	Part number
ImageCard Express	Green	555540-002
ImageCard S	Smoked gray	555540-003
ImageCard S2	Smoked gray	555540-003
UltraGrafix Express	Green	555540-002
UltraGrafix S	Smoked gray	555540-003
UltraGrafix S2	Smoked gray	555540-003

Interface cable

- Interface cable (part number 806797-001)

i The printer uses an ECP parallel port interface cable.

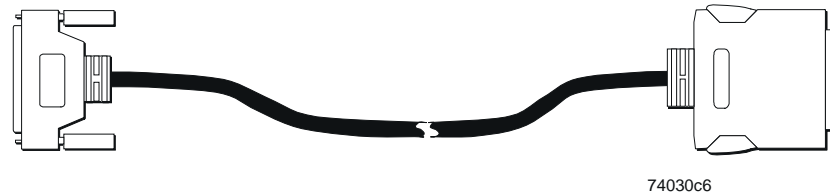


Figure B:-10 Interface cable

Power cable

- North American power cable (part number 556766-001)



Figure B:-11 U.S. power cable

- Continental European power cable (part number 556766-003)
- Australian power cable (part number 556766-002)
- United Kingdom power cable (part number 556766-010)
- Danish power cable (part number 556766-004)
- Indian power cable (part number 556766-005)
- Israeli power cable (part number 556766-006)
- Italian power cable (part number 556766-007)
- Swiss power cable (part number 556766-008)
- Japanese power cable (part number 556766-009)

Power receptacle fuse

- Power receptacle fuse (part number 804960-017)

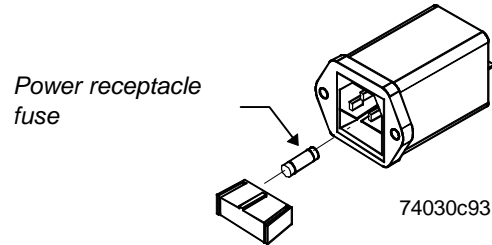


Figure B:-12 Power receptacle fuse

- i** The power receptacle fuse is a 2.5 amp. slow blow fuse.

Carrying case (Express & S models only)

- Carrying case (part number 556741-001)

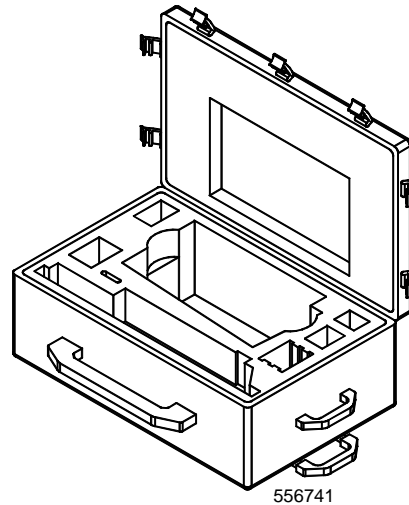


Figure B:-13 ImageCard/UltraGrafix Express & S series carrying case

- i** No carrying case is available for ImageCard/UltraGrafix S2 printers.

Publications

- *ImageCard Express Operator's Tutorial* CD-ROM (part number 555413-001)
- If you want to develop PC software that works with the ImageCard/UltraGrafix series, you can order the DataCard Raster Printer Application Programming Interface (API). This contains the *DataCard Software Developer's Manual for Desktop Raster Printers* (526720-002). (The document was formerly called the *ImageCard Express Software Developer's Kit*, with the part number 526720-001.)

Printer driver

- ImageCard/UltraGrafix series Windows 95/98 and Windows NT 4.0 printer driver diskettes (various part numbers, as shown below)
- i** You can get the most current copy of the printer driver from DataCard's Internet Web site (**www.datacard.com**).

These are the drivers available for the Express and Select printer classes (the Select class includes S and S2 models):

Printer class	Windows 95/98 driver	Windows NT driver
Express class	Version: 1.4 Part number: 557630-001	Version: 1.0 Part number: 557631-001
Select class	Version: 2.0 Part number: 557629-001	Version: 2.0 Part number: 557665-001

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